

Appendix C: Test Data for E-UTRA Band 7

Product Name: Portable Data Collector

Trade Mark: Newland

Test Model: NLS-NFT10

Environmental Conditions

Temperature:	24.5 ° C
Relative Humidity:	53.6%
ATM Pressure:	100.0 kPa
Test Engineer:	WANGCHUANG
Supervised by:	TOM.LIU

A.1 Conducted Output Power

Conducted Output Power Test Result (Channel Bandwidth: 5 MHz)						
Modulation	Channel	RB Configuration		Average Power [dBm]	Average Power [dBm]	Verdict
		Size	Offset	QPSK	16QAM	
QPSK / 16QAM	LCH	1	0	21.32	20.18	PASS
		1	12	21.36	20.50	PASS
		1	24	21.09	20.35	PASS
		12	0	20.01	19.20	PASS
		12	6	20.19	19.32	PASS
		12	13	20.18	19.28	PASS
		25	0	20.11	19.16	PASS
	MCH	1	0	20.98	20.25	PASS
		1	12	21.25	20.39	PASS
		1	24	20.80	20.00	PASS
		12	0	19.95	18.80	PASS
		12	6	19.96	18.96	PASS
		12	13	19.67	18.75	PASS
		25	0	19.48	18.51	PASS
	HCH	1	0	19.84	18.79	PASS
		1	12	20.23	18.96	PASS
		1	24	19.87	18.73	PASS
		12	0	18.85	17.89	PASS
		12	6	18.91	17.98	PASS
		12	13	18.80	17.88	PASS
		25	0	18.91	17.94	PASS

Conducted Output Power Test Result (Channel Bandwidth: 10 MHz)

Modulation	Channel	RB Configuration		Average Power [dBm]	Average Power [dBm]	Verdict
		Size	Offset	QPSK	16QAM	
QPSK / 16QAM	LCH	1	0	20.48	19.68	PASS
		1	24	20.88	20.02	PASS
		1	49	20.82	20.04	PASS
		25	0	19.66	18.71	PASS
		25	12	19.80	18.78	PASS
		25	25	19.88	18.92	PASS
		50	0	19.78	18.77	PASS
	MCH	1	0	20.62	19.84	PASS
		1	24	20.60	19.79	PASS
		1	49	20.36	19.52	PASS
		25	0	19.59	18.63	PASS
		25	12	19.54	18.53	PASS
		25	25	19.41	18.45	PASS
		50	0	19.50	18.50	PASS
	HCH	1	0	20.13	19.50	PASS
		1	24	20.09	19.43	PASS
		1	49	19.89	19.18	PASS
		25	0	19.12	18.17	PASS
		25	12	19.02	18.07	PASS
		25	25	18.95	18.02	PASS
		50	0	19.03	18.13	PASS

Conducted Output Power Test Result (Channel Bandwidth: 15 MHz)

Modulation	Channel	RB Configuration		Average Power [dBm] QPSK	Average Power [dBm] 16QAM	Verdict
		Size	Offset			
QPSK / 16QAM	LCH	1	0	20.38	19.58	PASS
		1	37	20.97	20.28	PASS
		1	74	20.71	20.00	PASS
		37	0	19.83	18.79	PASS
		37	18	20.00	18.96	PASS
		37	38	19.98	18.93	PASS
		75	0	19.96	18.89	PASS
	MCH	1	0	20.75	19.96	PASS
		1	37	20.63	19.78	PASS
		1	74	20.31	19.52	PASS
		37	0	19.73	18.70	PASS
		37	18	19.68	18.60	PASS
		37	38	19.58	18.48	PASS
		75	0	19.68	18.60	PASS
	HCH	1	0	20.50	19.79	PASS
		1	37	20.28	19.46	PASS
		1	74	19.79	19.02	PASS
		37	0	19.42	18.46	PASS
		37	18	19.22	18.26	PASS
		37	38	19.04	18.04	PASS
		75	0	19.27	18.24	PASS

Conducted Output Power Test Result (Channel Bandwidth: 20 MHz)

Modulation	Channel	RB Configuration		Average Power [dBm]	Average Power [dBm]	Verdict
		Size	Offset	QPSK	16QAM	
QPSK / 16QAM	LCH	1	0	20.30	19.43	PASS
		1	49	21.14	20.23	PASS
		1	99	20.57	19.78	PASS
		50	0	19.85	18.83	PASS
		50	25	20.00	19.01	PASS
		50	50	19.97	18.94	PASS
		100	0	19.91	18.89	PASS
	MCH	1	0	20.75	19.96	PASS
		1	49	20.75	19.85	PASS
		1	99	20.38	19.52	PASS
		50	0	19.74	18.73	PASS
		50	25	19.54	18.56	PASS
		50	50	19.42	18.40	PASS
		100	0	19.57	18.60	PASS
	HCH	1	0	20.64	19.94	PASS
		1	49	20.51	19.81	PASS
		1	99	19.62	18.91	PASS
		50	0	19.67	18.74	PASS
		50	25	19.38	18.47	PASS
		50	50	19.09	18.12	PASS
		100	0	19.34	18.36	PASS

A.2 Peak-to-Average Ratio**Peak-to Average Ratio Test Result (Channel Bandwidth: 5 MHz)**

Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	4.87	<13	PASS
	MCH	4.82	<13	PASS
	HCH	5.04	<13	PASS
16QAM	LCH	5.71	<13	PASS
	MCH	5.68	<13	PASS
	HCH	5.89	<13	PASS

Peak-to Average Ratio Test Result (Channel Bandwidth: 10 MHz)

Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	5.04	<13	PASS
	MCH	5.01	<13	PASS
	HCH	5.29	<13	PASS
16QAM	LCH	5.83	<13	PASS
	MCH	5.8	<13	PASS
	HCH	6.09	<13	PASS

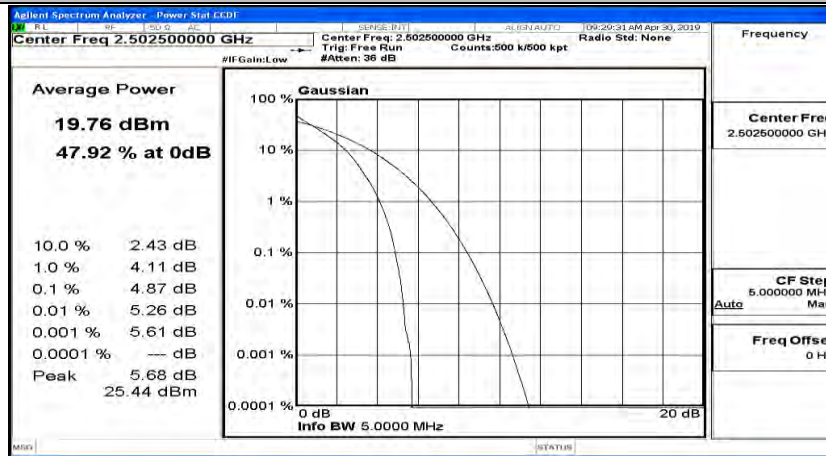
Peak-to Average Ratio Test Result (Channel Bandwidth: 15 MHz)

Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	4.98	<13	PASS
	MCH	4.99	<13	PASS
	HCH	5.02	<13	PASS
16QAM	LCH	6.2	<13	PASS
	MCH	6.18	<13	PASS
	HCH	6.31	<13	PASS

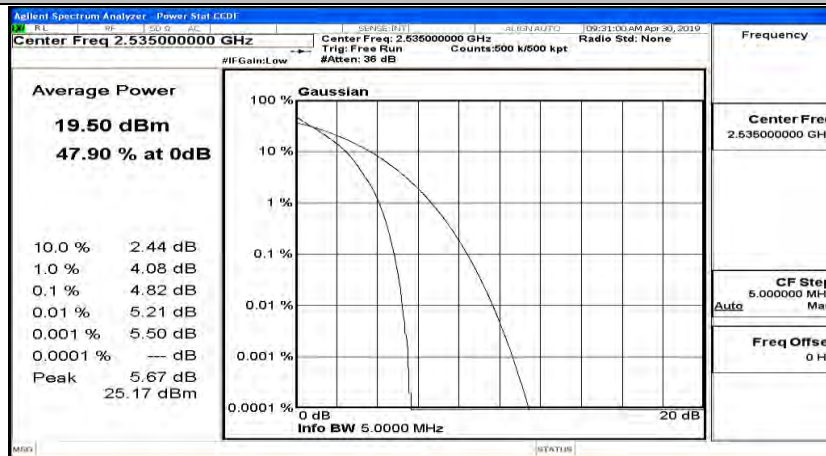
Peak-to Average Ratio Test Result (Channel Bandwidth: 20 MHz)

Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	5.73	<13	PASS
	MCH	5.71	<13	PASS
	HCH	5.74	<13	PASS
16QAM	LCH	6.88	<13	PASS
	MCH	6.82	<13	PASS
	HCH	6.79	<13	PASS

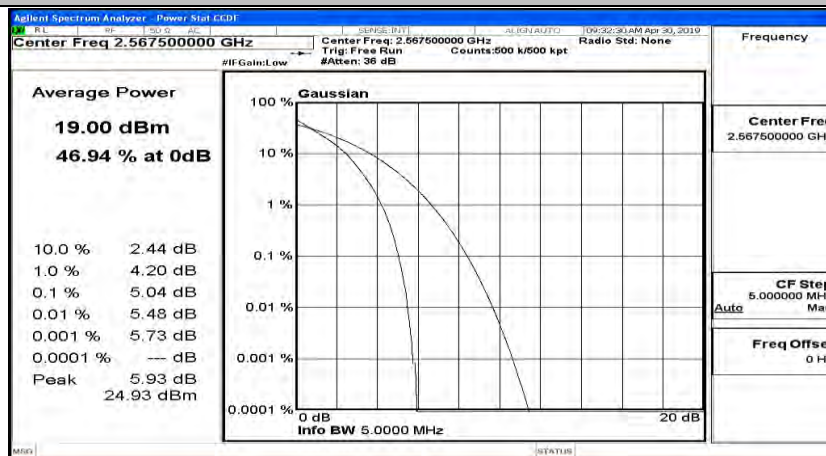
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_QPSK



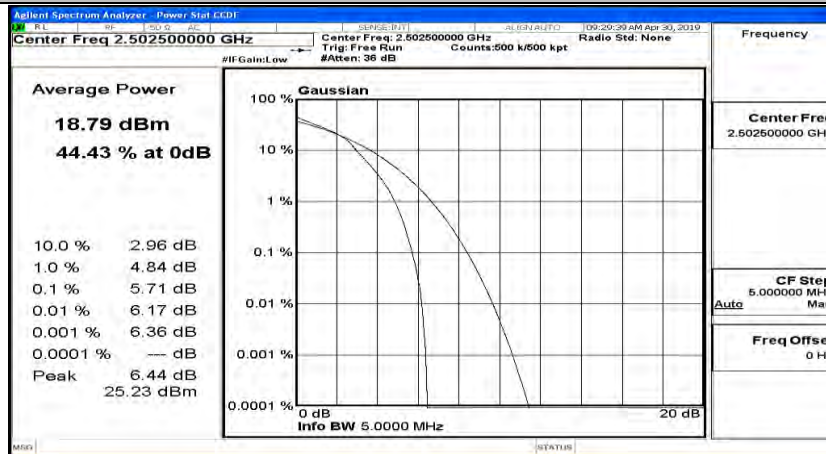
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_MCH_QPSK



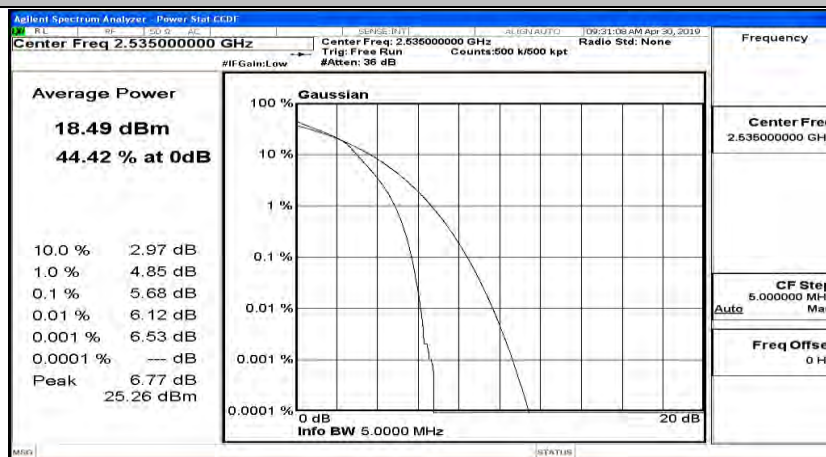
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_QPSK



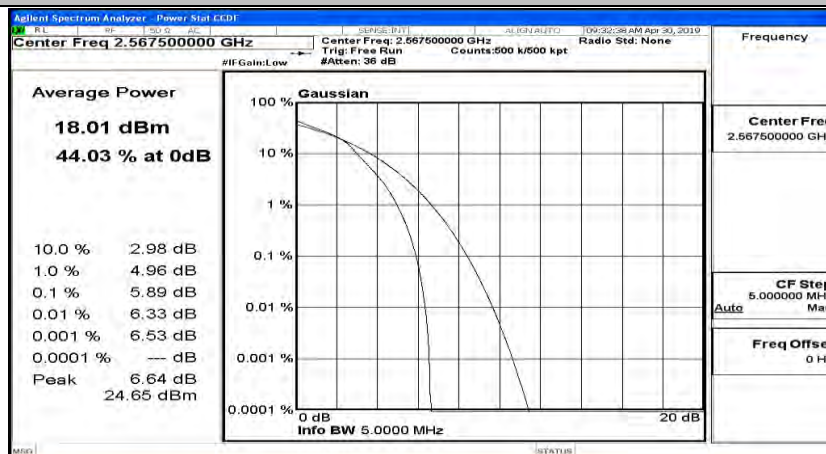
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_16QAM



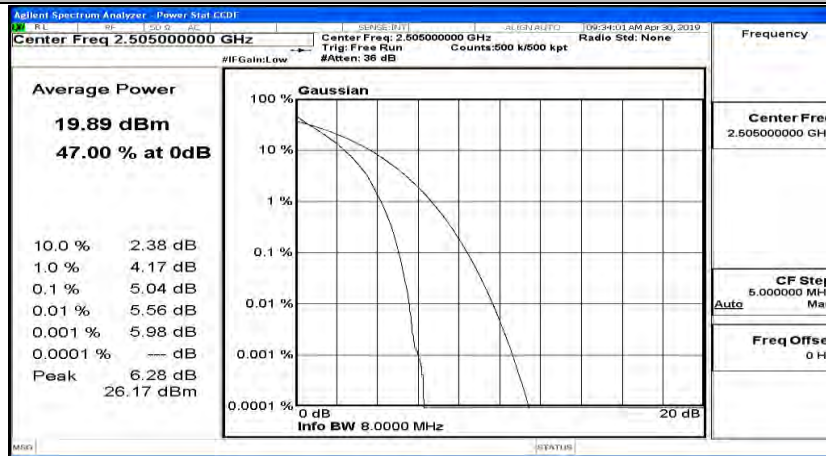
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_MCH_16QAM



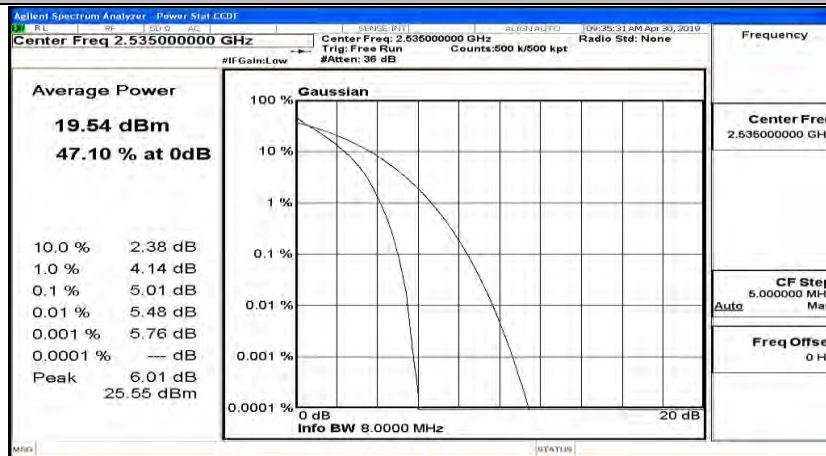
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_16QAM



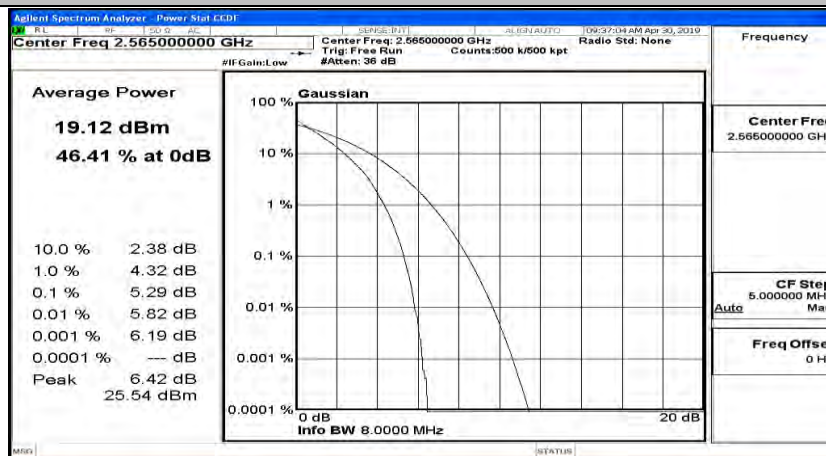
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_QPSK



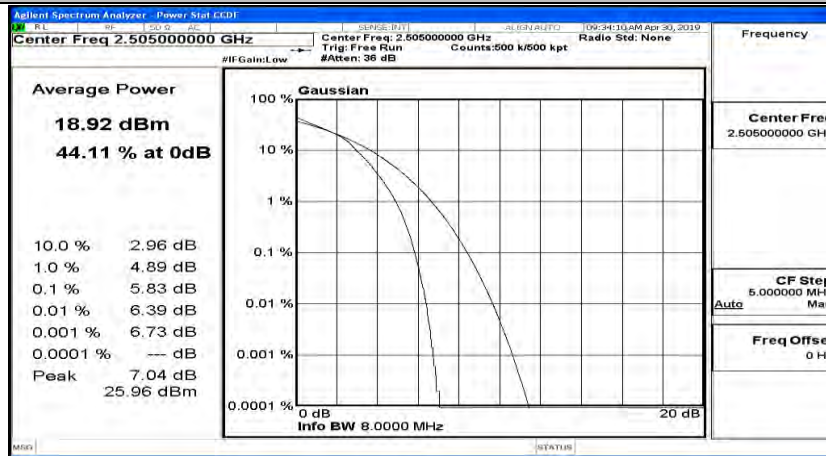
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_MCH_QPSK



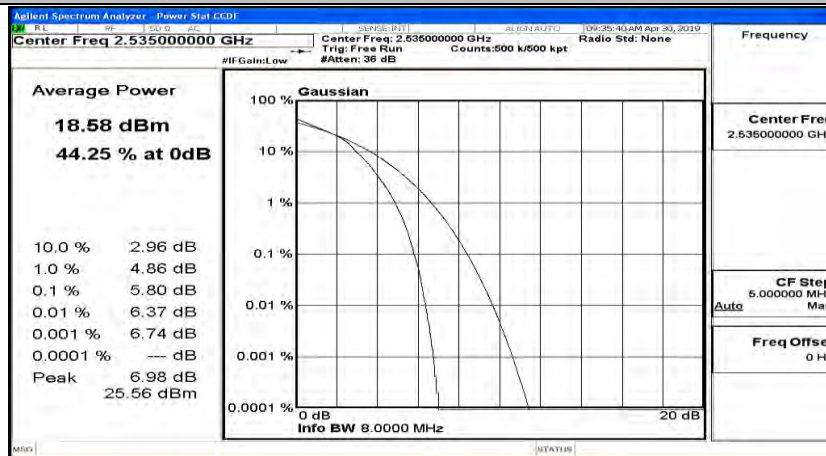
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_QPSK



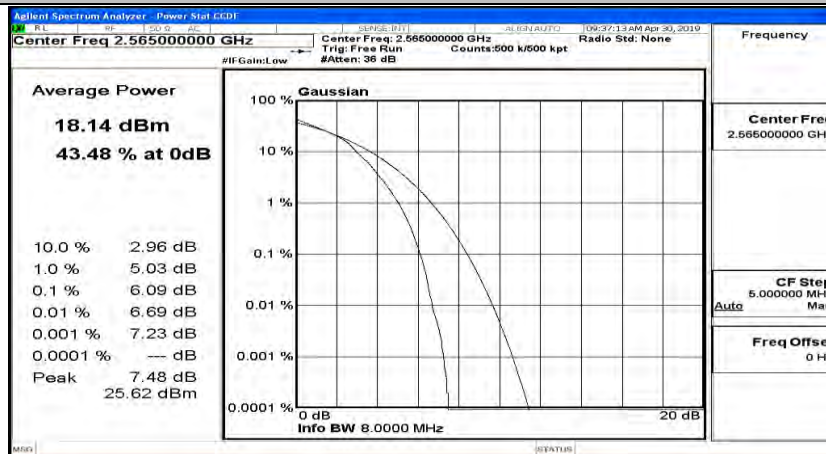
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_16QAM



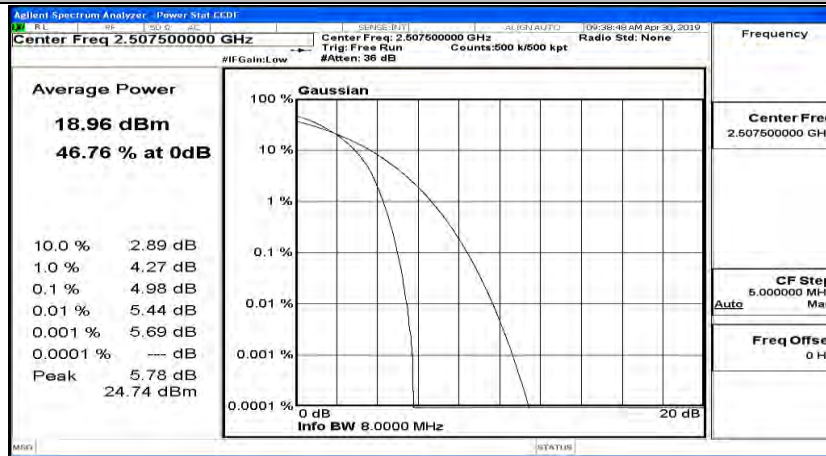
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_MCH_16QAM



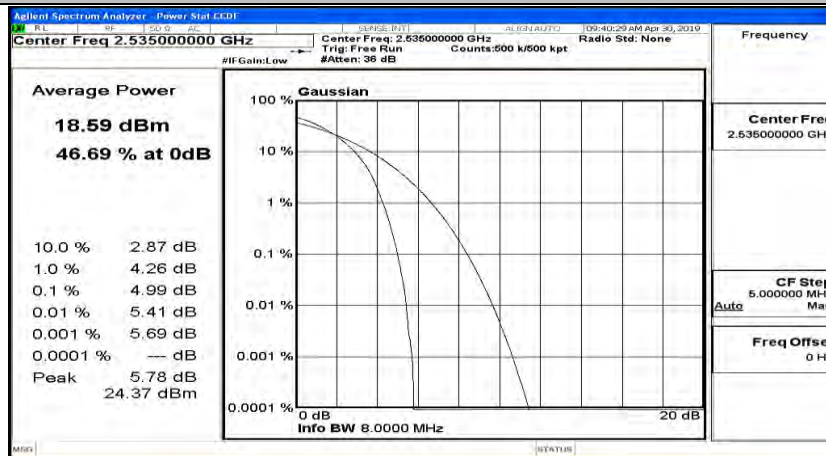
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_16QAM



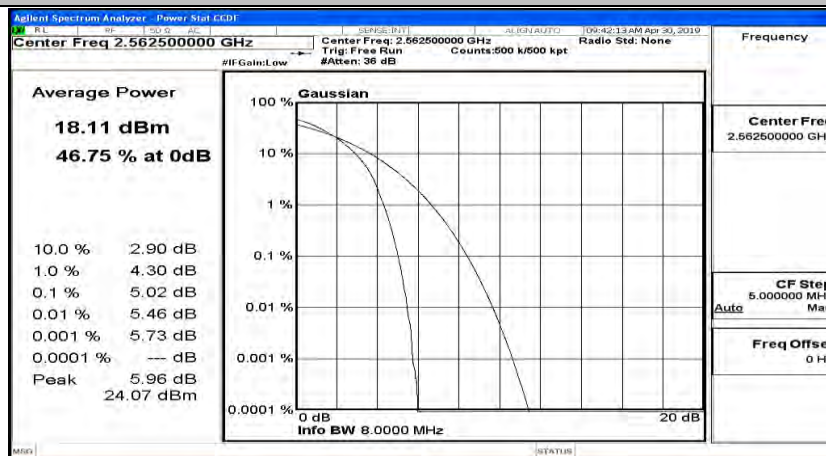
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:15 MHz)_LCH_QPSK



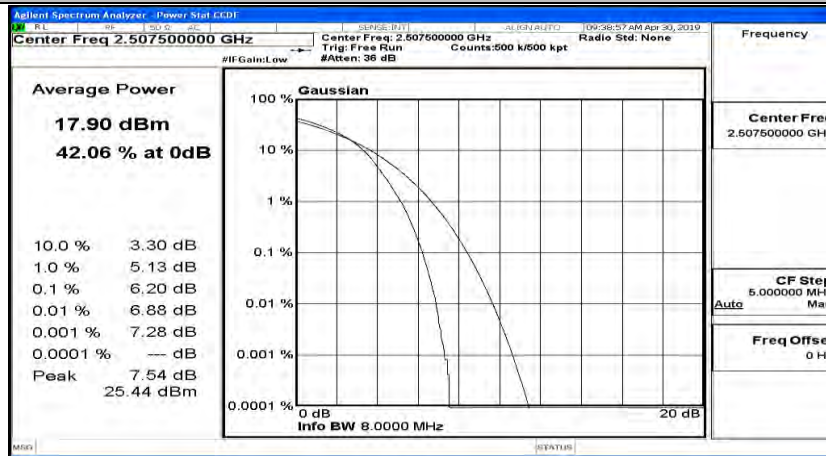
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:15 MHz)_MCH_QPSK



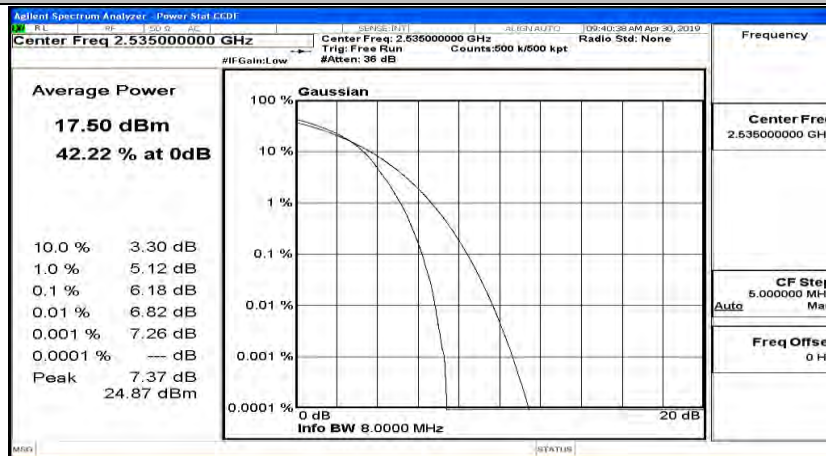
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:15 MHz)_HCH_QPSK



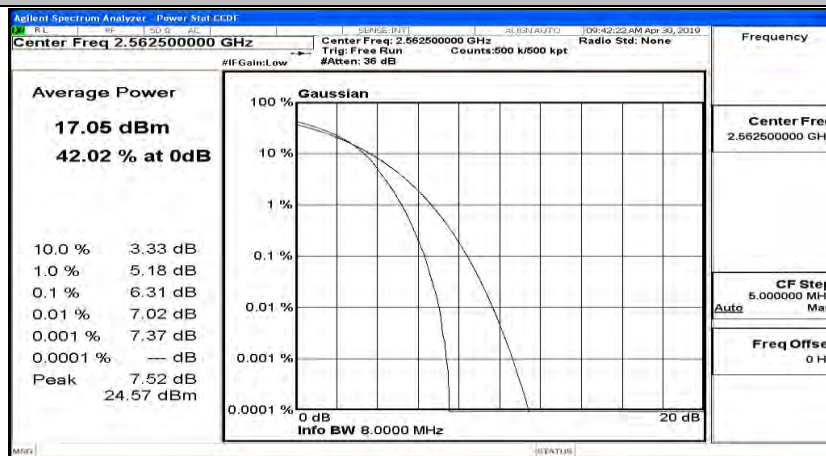
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:15 MHz)_LCH_16QAM



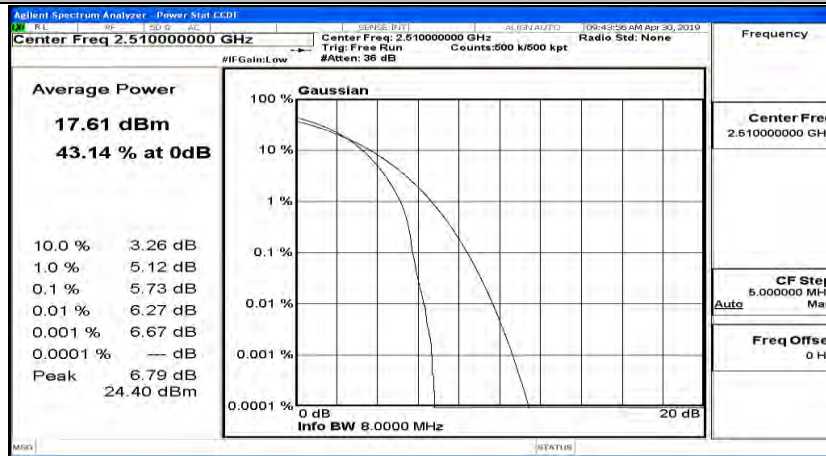
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:15 MHz)_MCH_16QAM



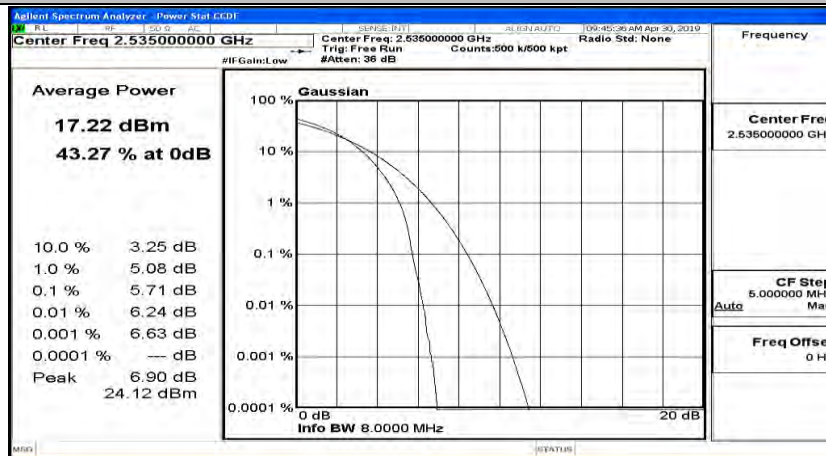
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:15 MHz)_HCH_16QAM



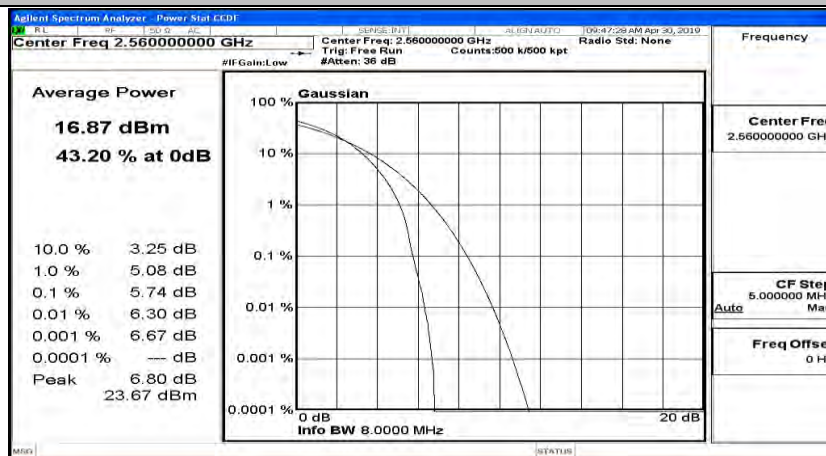
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:20 MHz)_LCH_QPSK



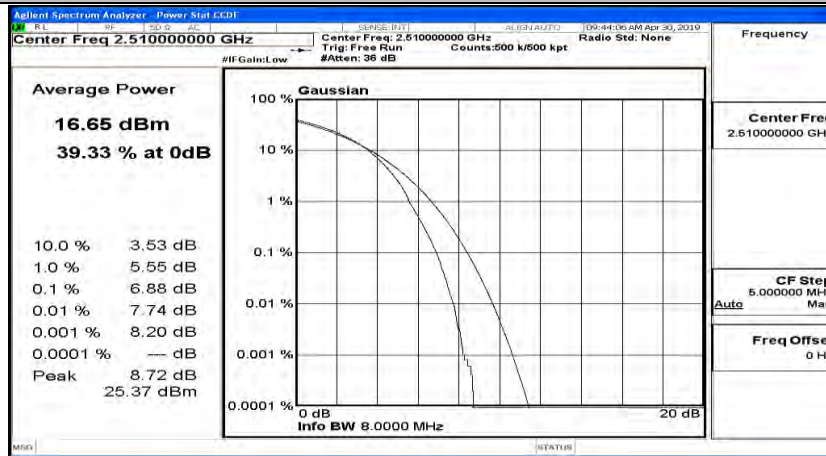
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:20 MHz)_MCH_QPSK



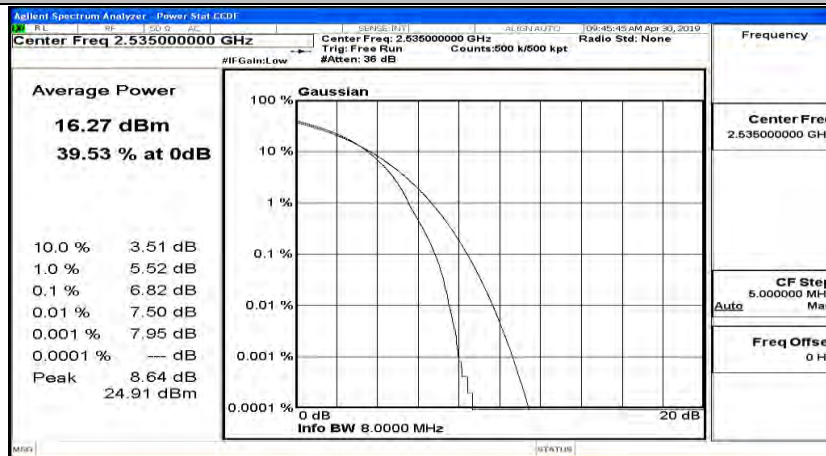
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:20 MHz)_HCH_QPSK



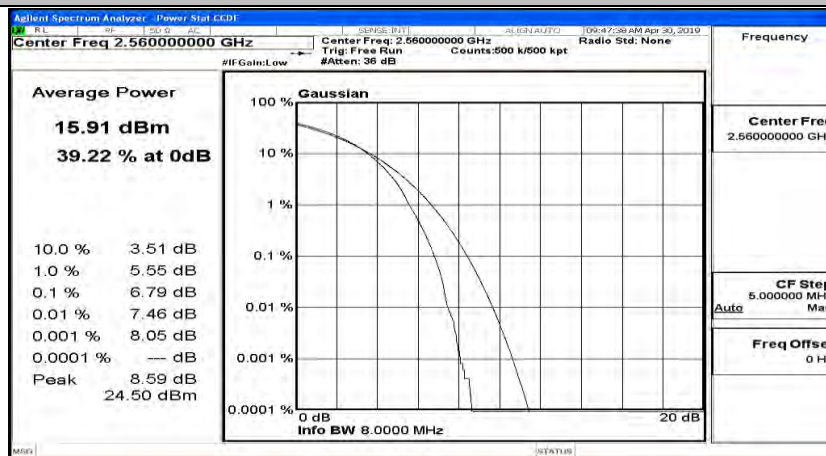
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:20 MHz)_LCH_16QAM



Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:20 MHz)_MCH_16QAM



Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:20 MHz)_HCH_16QAM



A.3 26dB Bandwidth and Occupied Bandwidth

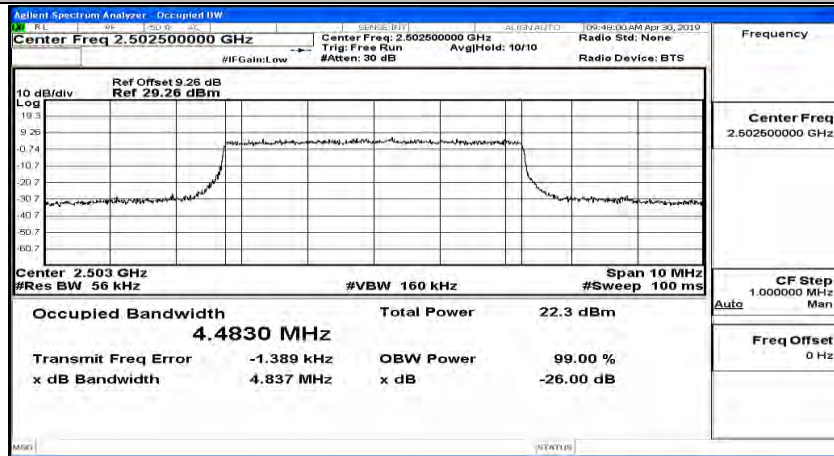
EBW & OBW Test Result (Channel Bandwidth: 5 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	4.4830	4.837	PASS
	MCH	4.4776	4.857	PASS
	HCH	4.4862	4.899	PASS
16QAM	LCH	4.4677	4.865	PASS
	MCH	4.4825	4.879	PASS
	HCH	4.4813	4.850	PASS

EBW & OBW Test Result (Channel Bandwidth: 10 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	8.9383	9.555	PASS
	MCH	8.9456	9.533	PASS
	HCH	8.9342	9.556	PASS
16QAM	LCH	8.9291	9.460	PASS
	MCH	8.9346	9.551	PASS
	HCH	8.9548	9.484	PASS

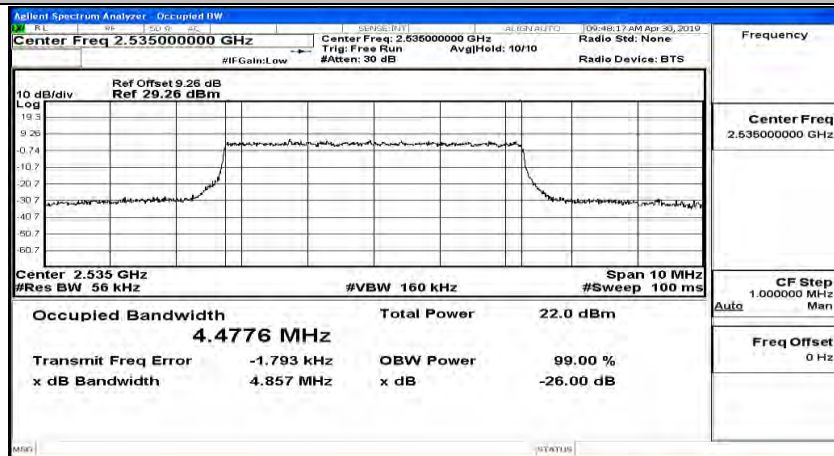
EBW & OBW Test Result (Channel Bandwidth: 15 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	13.392	14.16	PASS
	MCH	13.417	14.16	PASS
	HCH	13.412	14.09	PASS
16QAM	LCH	13.404	14.11	PASS
	MCH	13.403	14.12	PASS
	HCH	13.420	14.09	PASS

EBW & OBW Test Result (Channel Bandwidth: 20 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	17.851	18.68	PASS
	MCH	17.866	18.57	PASS
	HCH	17.888	18.63	PASS
16QAM	LCH	17.874	18.63	PASS
	MCH	17.874	18.66	PASS
	HCH	17.872	18.77	PASS

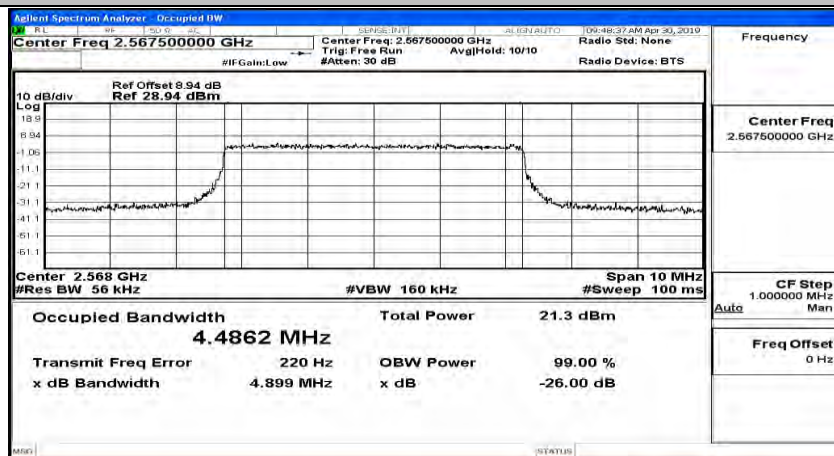
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_QPSK



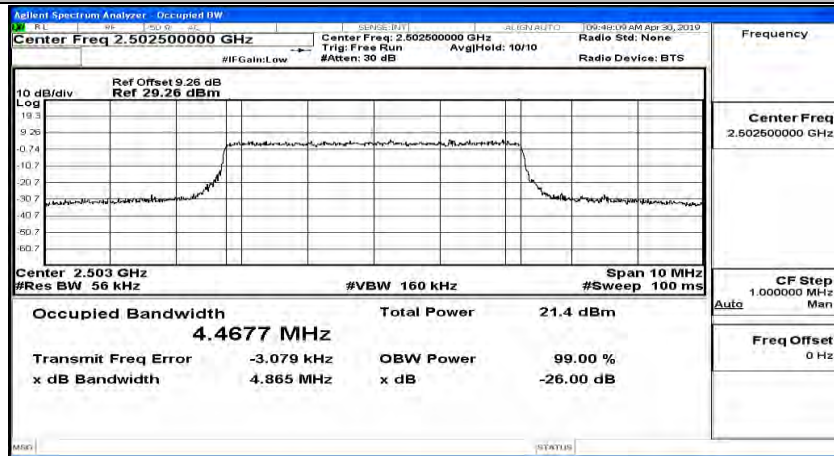
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_MCH_QPSK



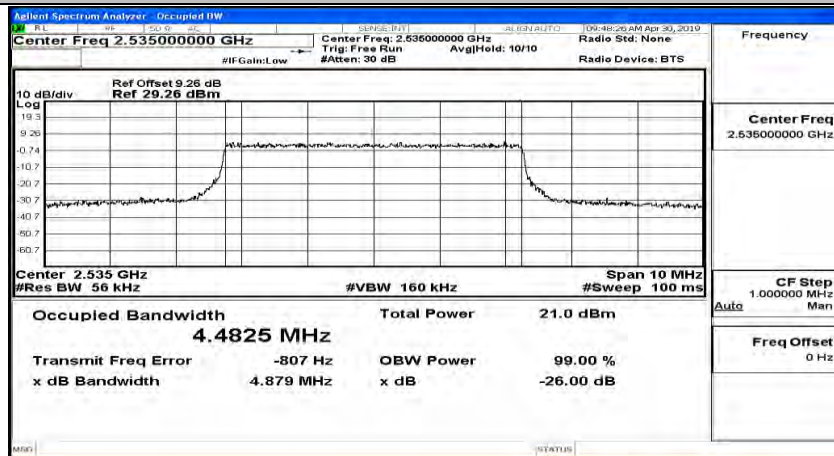
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_QPSK



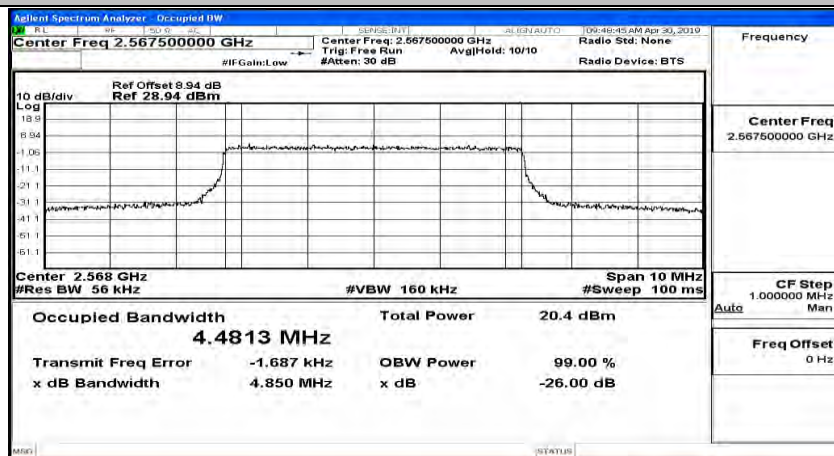
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_16QAM



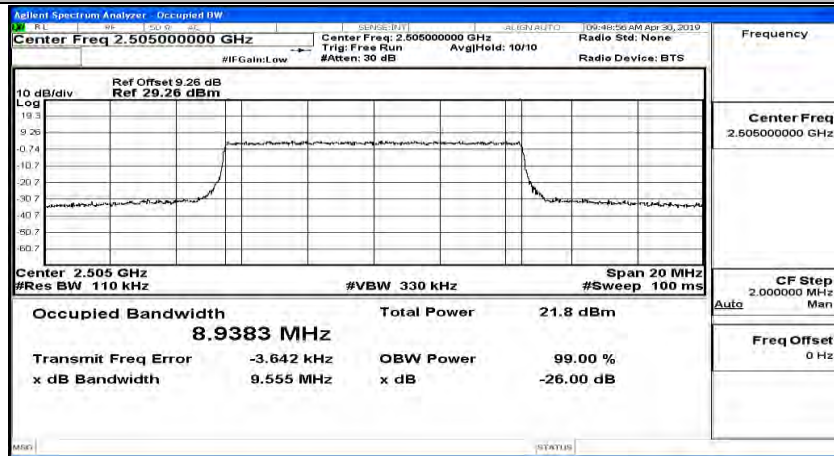
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_MCH_16QAM



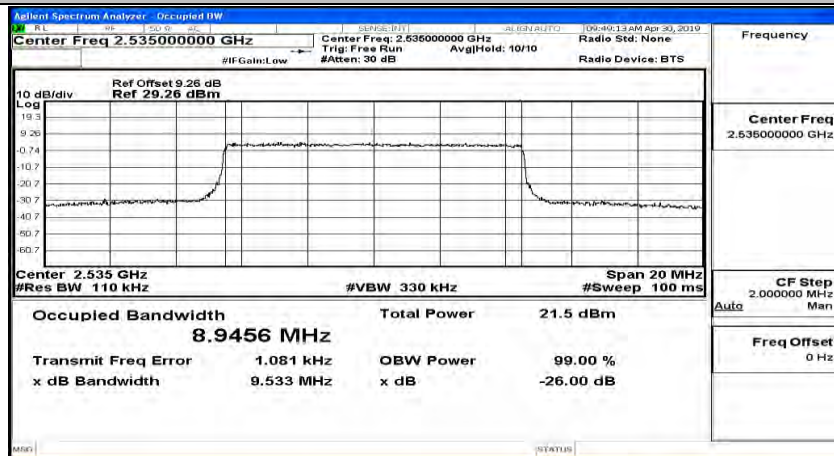
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_16QAM



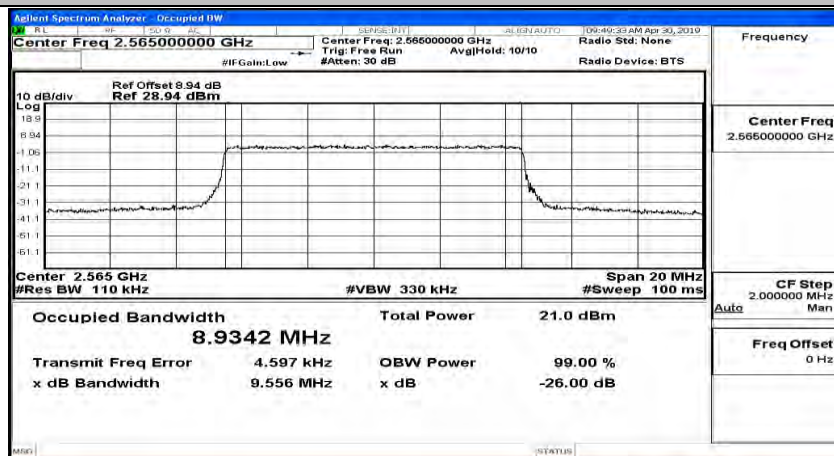
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_QPSK



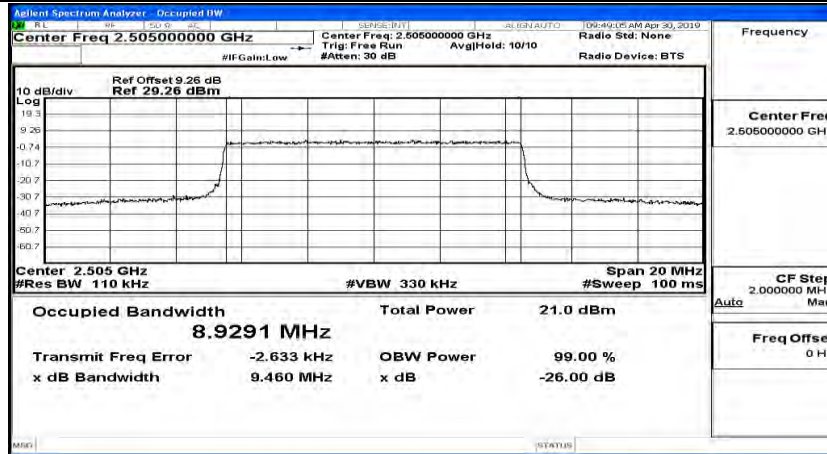
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_MCH_QPSK



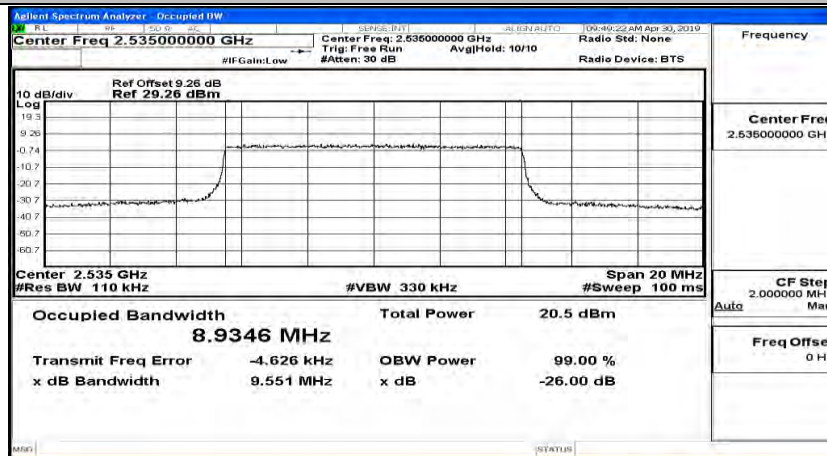
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_QPSK



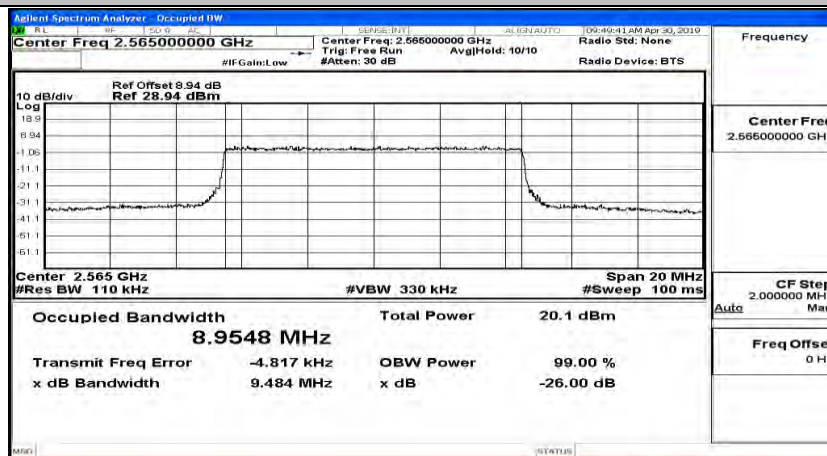
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_16QAM



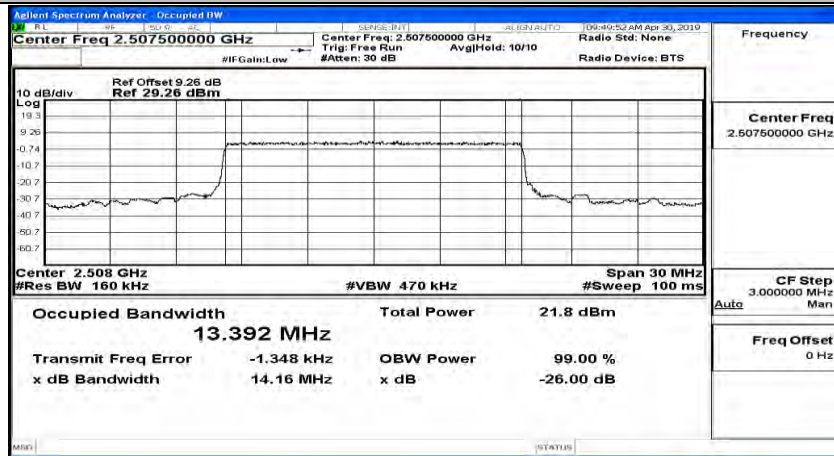
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_MCH_16QAM



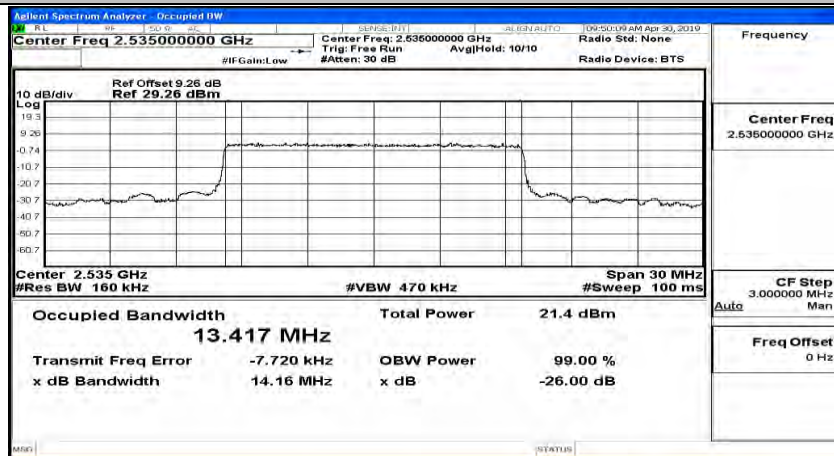
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_16QAM



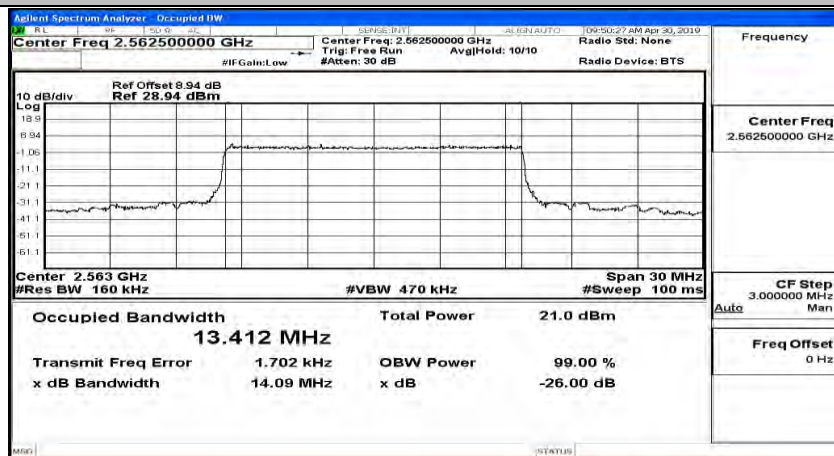
EBW & OBW Test Graph(s) (Channel Bandwidth:15 MHz)_LCH_QPSK



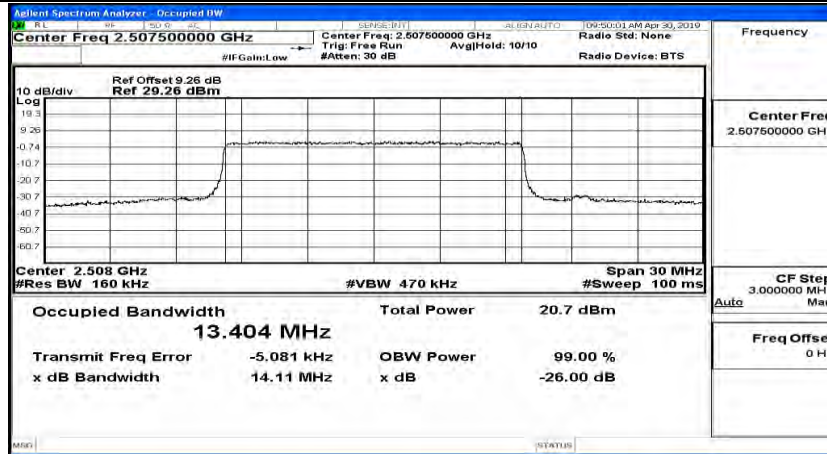
EBW & OBW Test Graph(s) (Channel Bandwidth:15 MHz)_MCH_QPSK



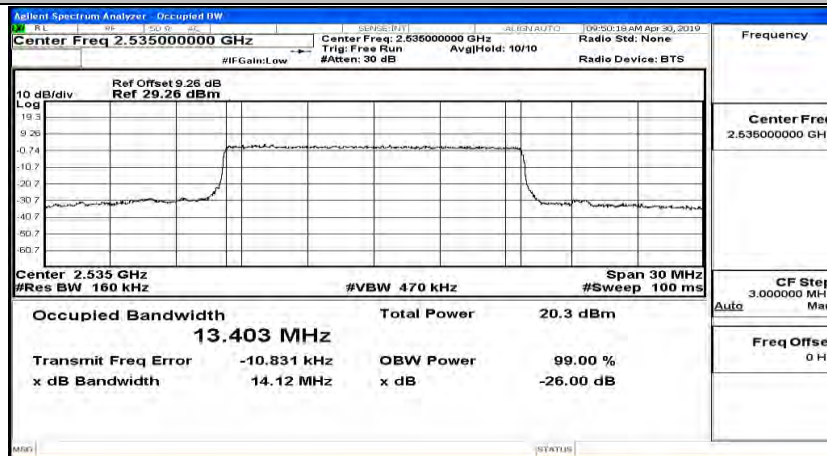
EBW & OBW Test Graph(s) (Channel Bandwidth:15 MHz)_HCH_QPSK



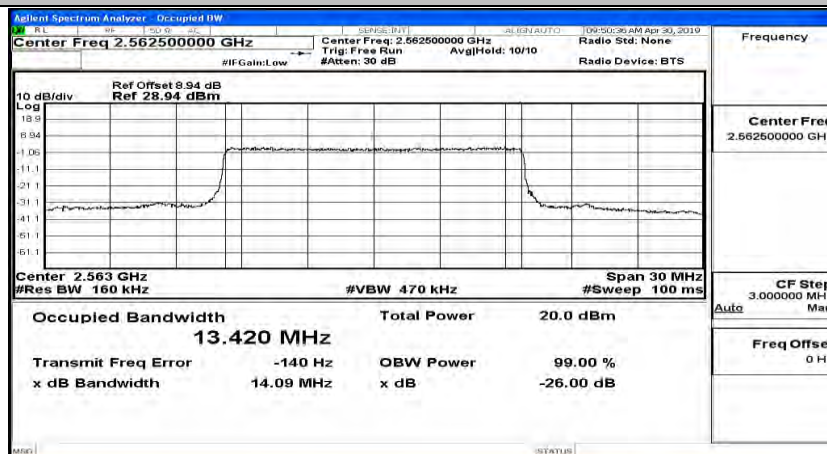
EBW & OBW Test Graph(s) (Channel Bandwidth:15 MHz)_LCH_16QAM



EBW & OBW Test Graph(s) (Channel Bandwidth:15 MHz)_MCH_16QAM



EBW & OBW Test Graph(s) (Channel Bandwidth:15 MHz)_HCH_16QAM



Ref: Full Spectrum Analyzer - Occupied BW
 #F Gain: Low

Center Freq: 2.510000000 GHz
 Span: 40 MHz
 Res BW: 200 kHz
 #Sweep: 100 ms

Center Freq: 2.510000000 GHz
 Trig: Free Run
 #Atten: 30 dB

Avg: Hold: 10/10
 Radio Std: None
 Radio Device: BTS

Frequency: 2.510000000 GHz

The spectrum plot shows a signal centered at 2.51 GHz. The y-axis represents power in dBm, ranging from -60 to 10. The x-axis represents frequency in MHz, ranging from 2.505 to 2.515. The signal has a flat top at approximately -1.569 dBm and sharp roll-offs on both sides.

Occupied Bandwidth	Total Power	CF Step
17.851 MHz	21.6 dBm	4.000000 MHz

Transmit Freq Error	OBW Power	Freq Offset
-1.569 kHz	99.00 %	0 Hz
x dB Bandwidth	x dB	
18.68 MHz	-26.00 dB	

MAG STATUS

Agilent Spectrum Analyzer - Occupied BW

Center Freq 2.535000000 GHz

Ref Offset 9.26 dB
Ref 29.26 dBm

10 dB/div

Log

19.3
9.26
-0.74
-10.7
-20.7
-30.7
-40.7
-50.7
-60.7

Center 2.535 GHz
#Res BW 200 kHz

#VBW 620 kHz

Span 40 MHz
#Sweep 100 ms

Occupied Bandwidth

17.866 MHz

Transmit Freq Error -12.941 kHz

x dB Bandwidth 18.57 MHz

Total Power 21.1 dBm

OBW Power 99.00 %

x dB -26.00 dB

Frequency

Center Freq 2.535000000 GHz

CF Step 4.000000 MHz

Freq Offset 0 Hz

SEPC: BTV

6.634 AU772

100:51:04 AM Apr 20, 2019

Center Freq: 2.535000000 GHz

Trig: Free Run

Avg/Hold: 10/10

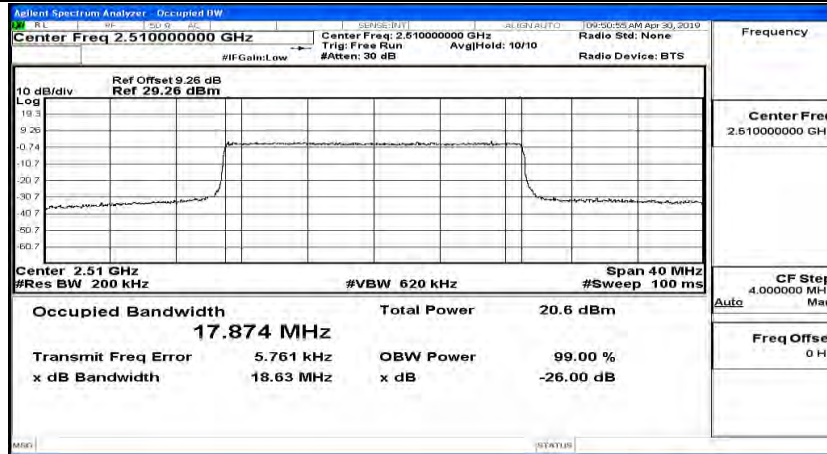
Radio Std: None

Radio Device: BTS

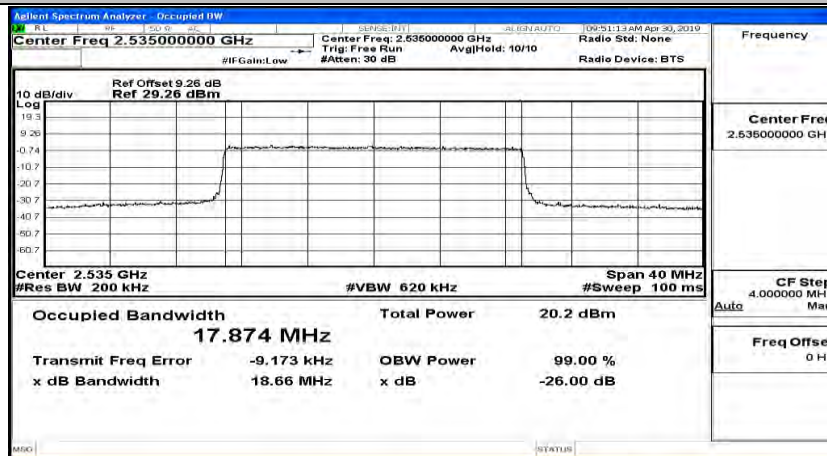
#IF Gain: Low

[illegible]

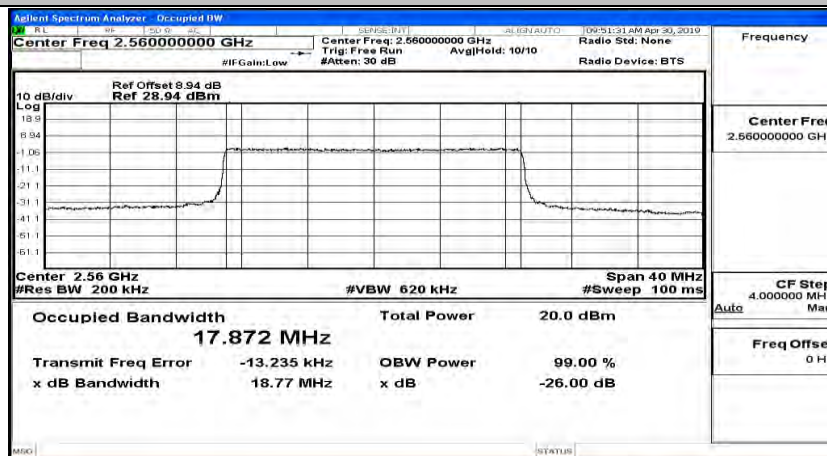
EBW & OBW Test Graph(s) (Channel Bandwidth:20 MHz)_LCH_16QAM



EBW & OBW Test Graph(s) (Channel Bandwidth:20 MHz)_MCH_16QAM

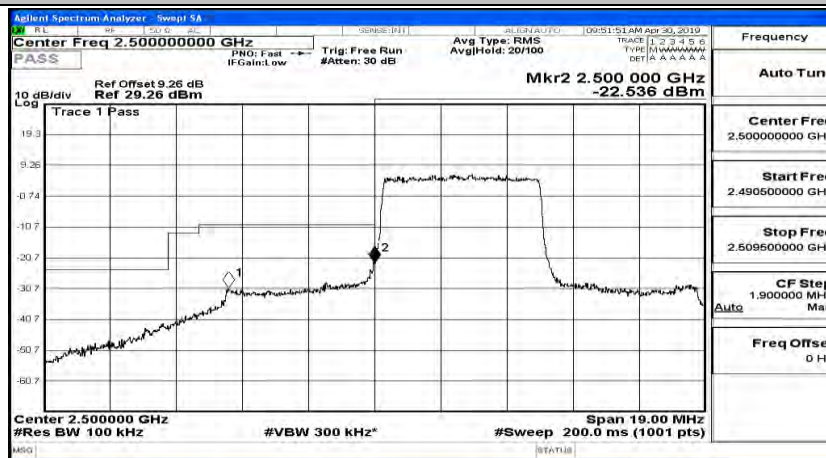


EBW & OBW Test Graph(s) (Channel Bandwidth:20 MHz)_HCH_16QAM

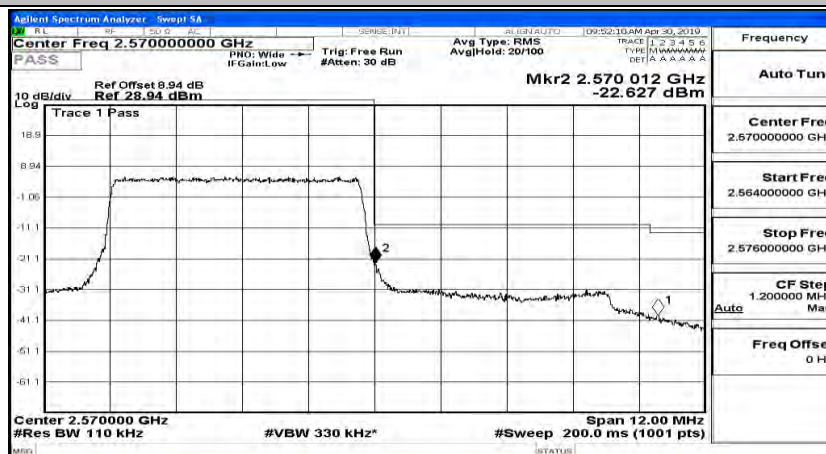


A.4 Band Edge

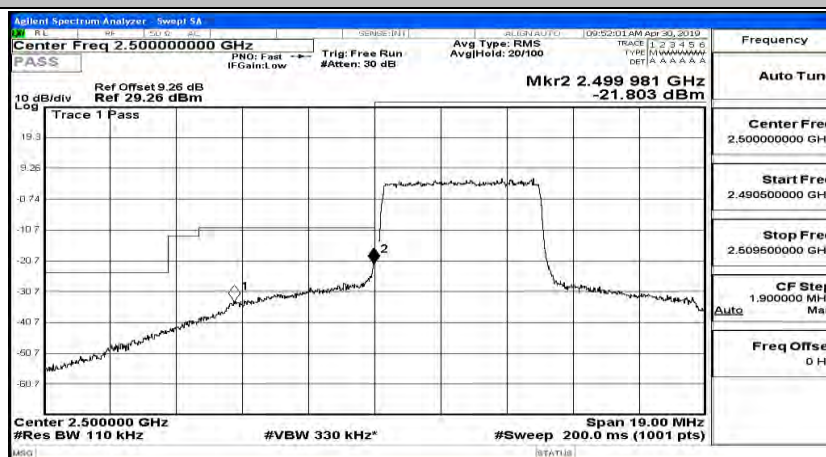
Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_QPSK



Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_QPSK



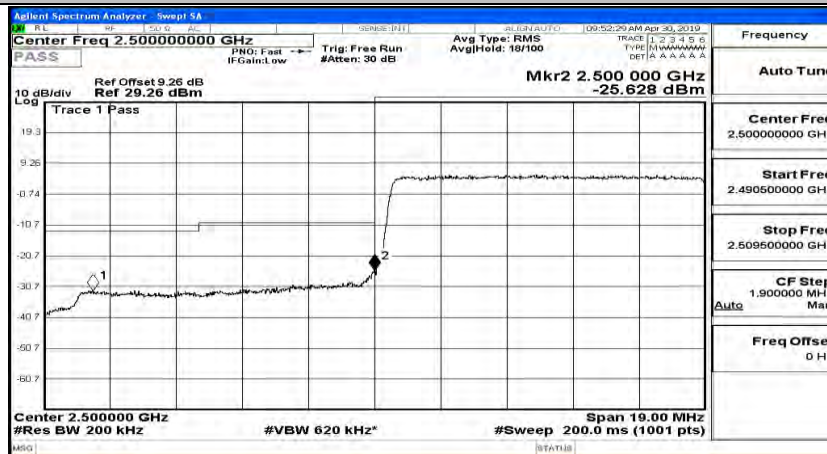
Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_16QAM



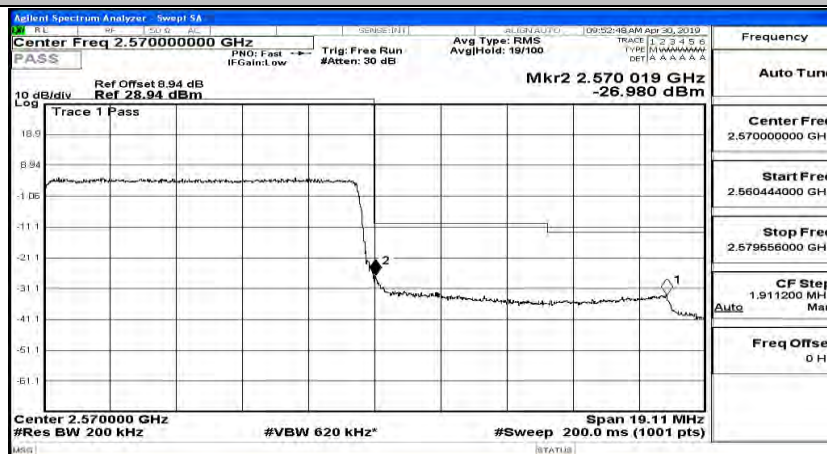
Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_16QAM



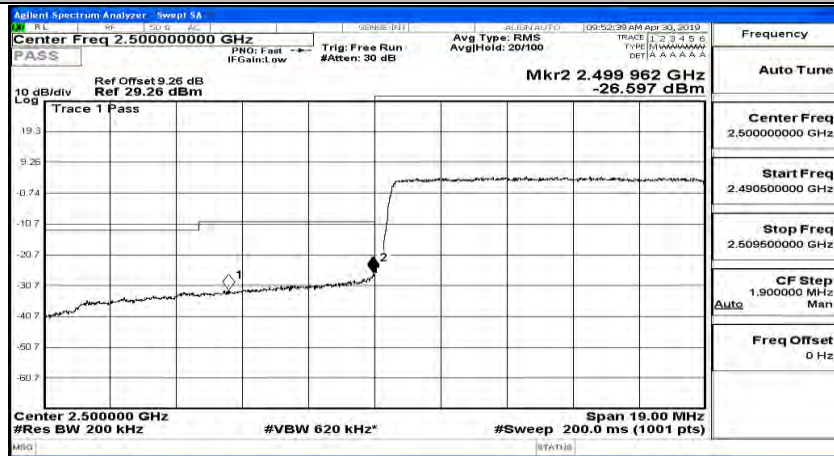
Band Edge Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_QPSK



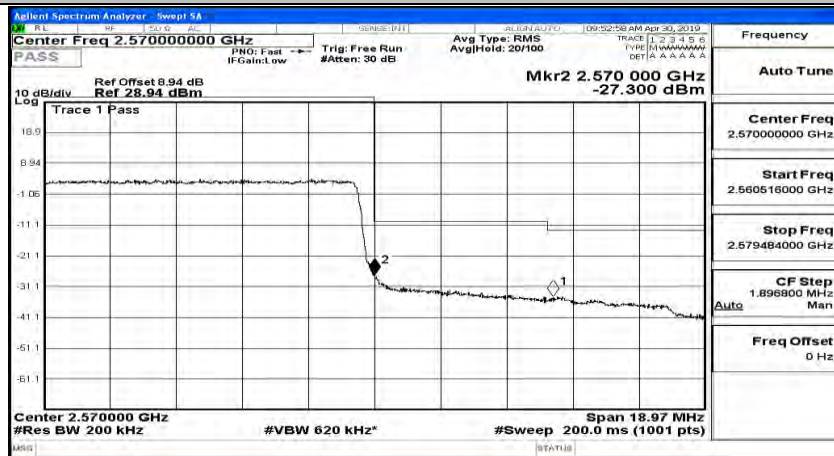
Band Edge Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_QPSK



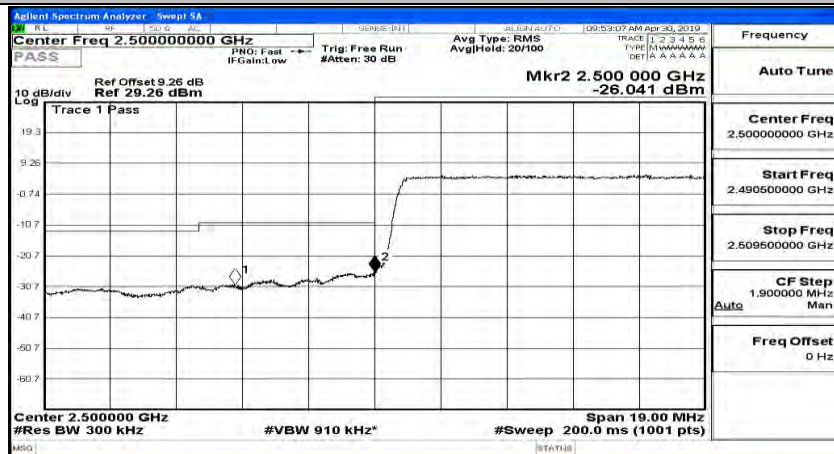
Band Edge Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_16QAM



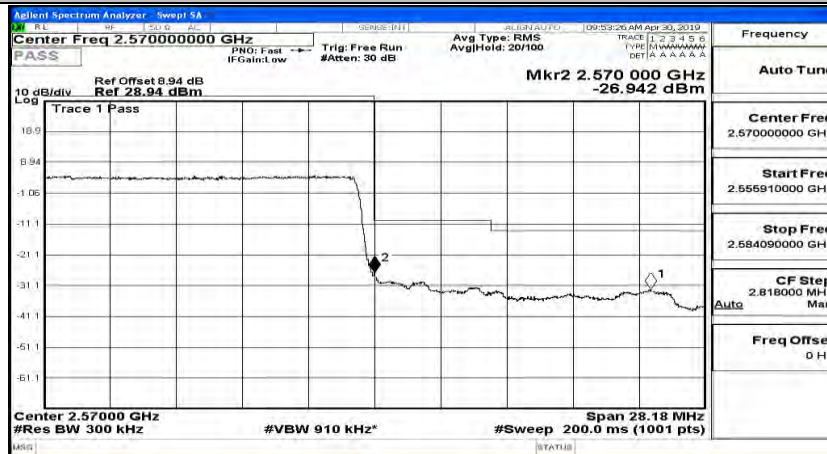
Band Edge Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_16QAM



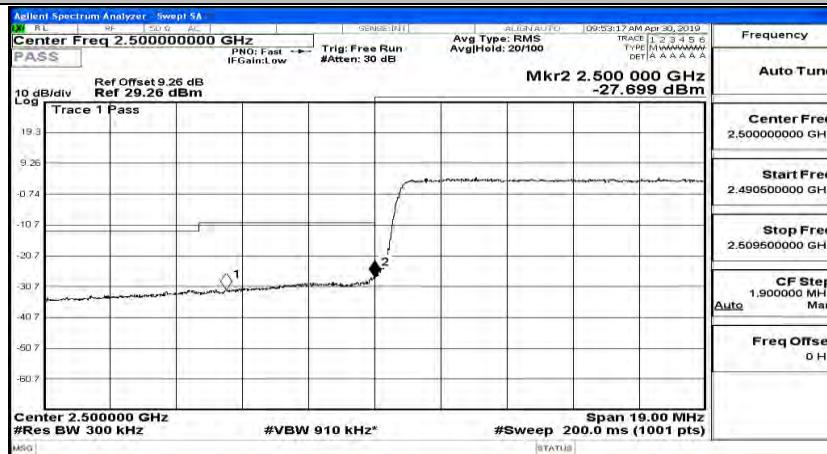
Band Edge Test Graph(s) (Channel Bandwidth:15 MHz)_LCH_QPSK



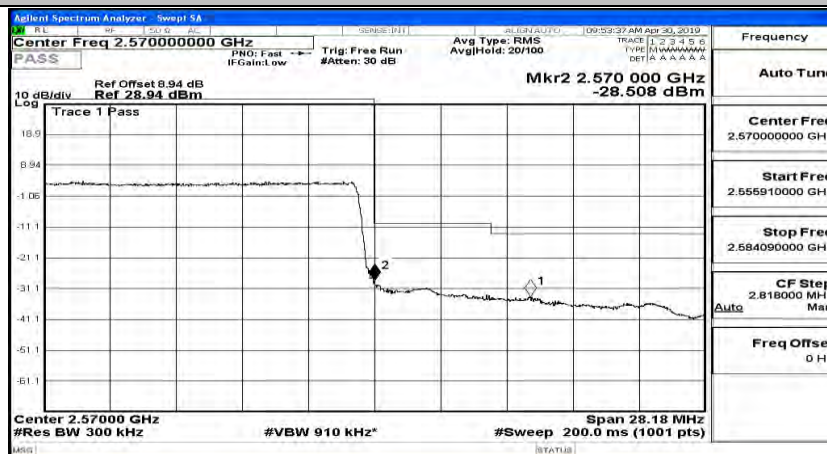
Band Edge Test Graph(s) (Channel Bandwidth:15 MHz)_HCH_QPSK



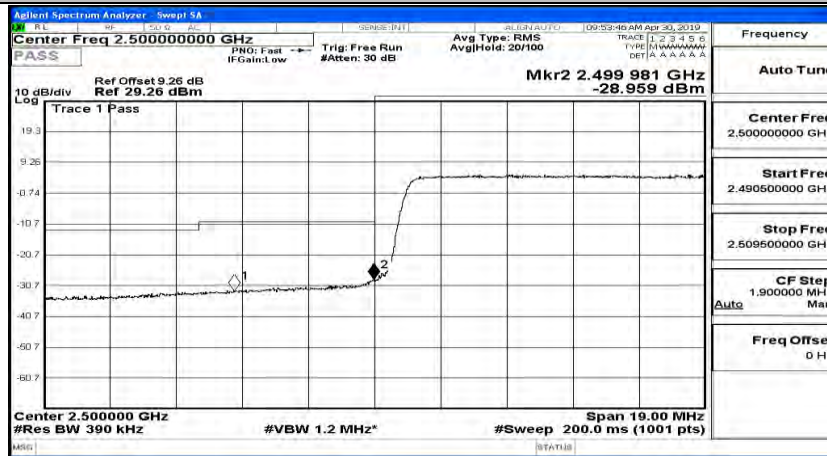
Band Edge Test Graph(s) (Channel Bandwidth:15 MHz)_LCH_16QAM



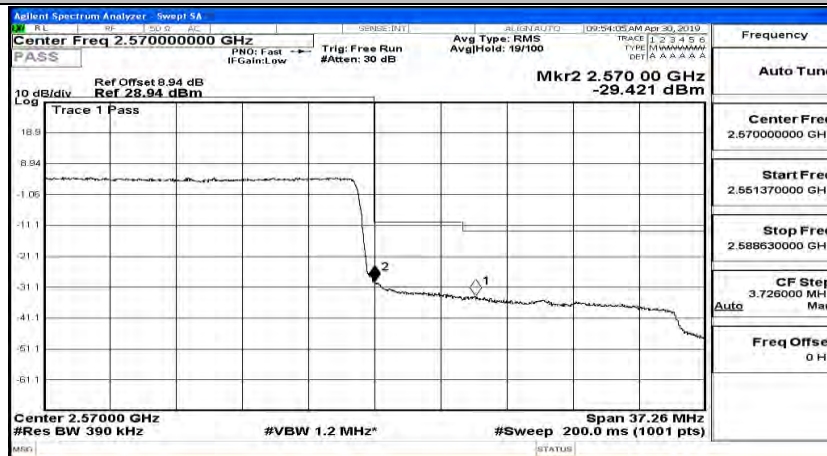
Band Edge Test Graph(s) (Channel Bandwidth:15 MHz)_HCH_16QAM



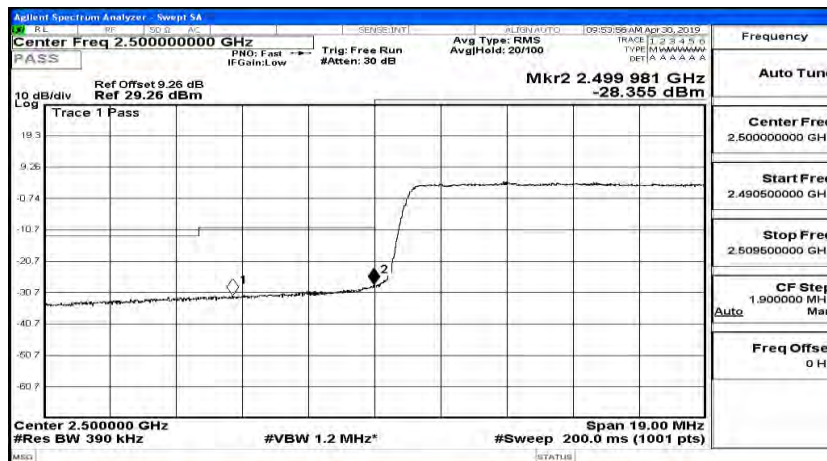
Band Edge Test Graph(s) (Channel Bandwidth:20 MHz)_LCH_QPSK



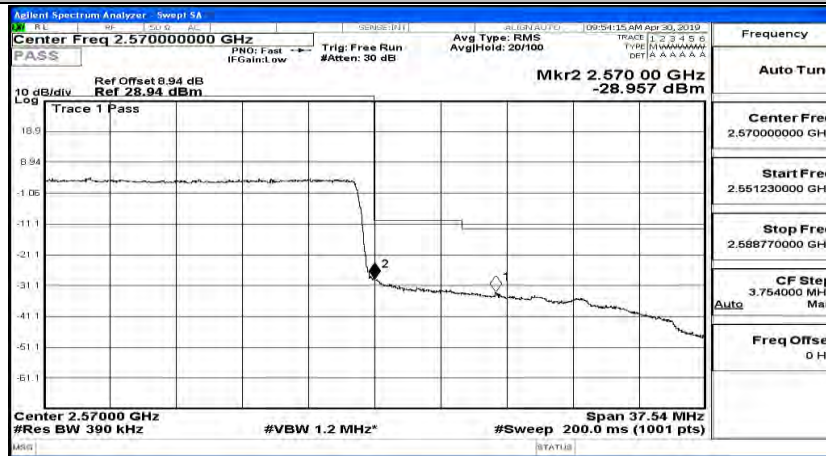
Band Edge Test Graph(s) (Channel Bandwidth:20 MHz)_HCH_QPSK



Band Edge Test Graph(s) (Channel Bandwidth:20 MHz)_LCH_16QAM

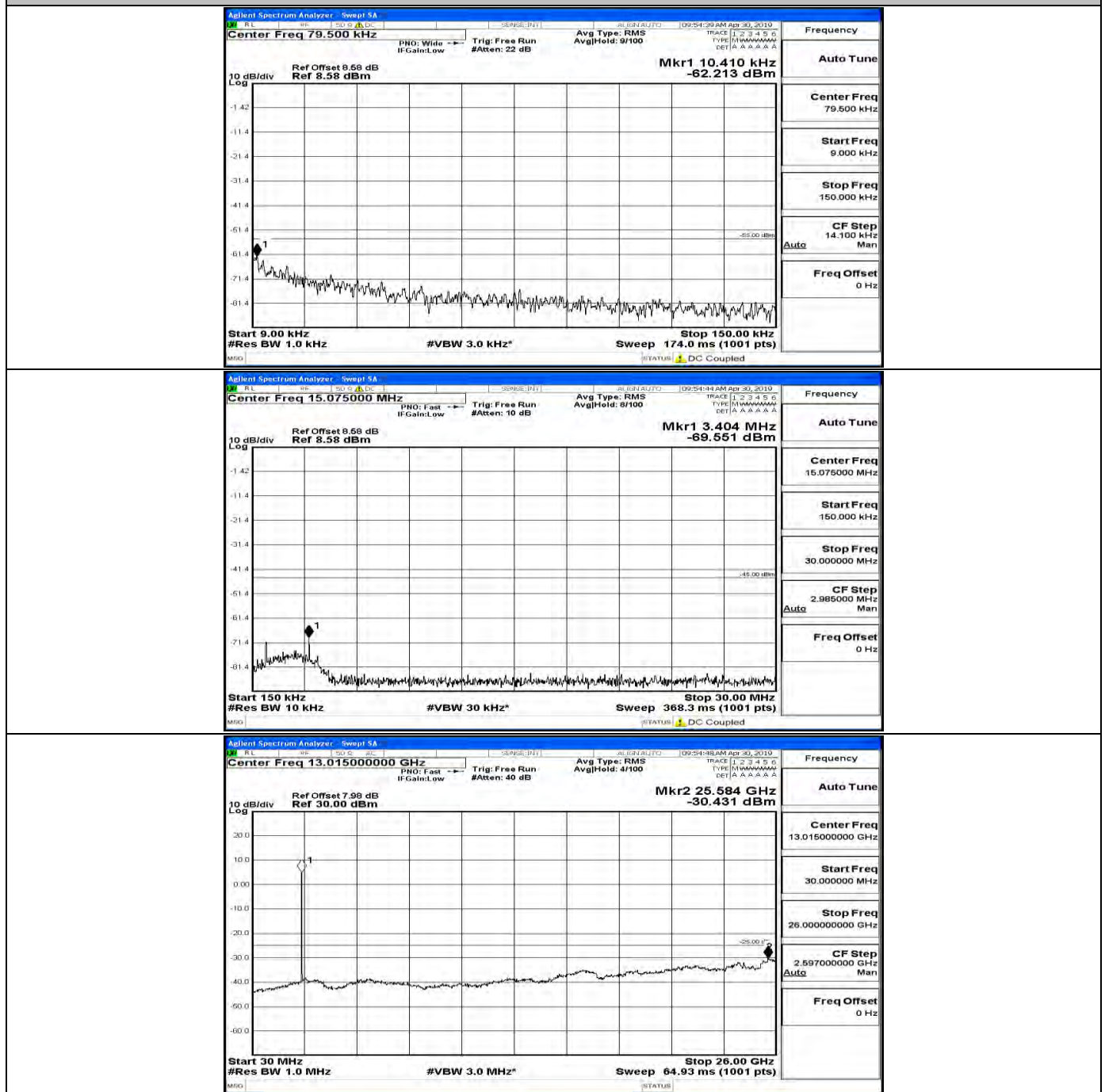


Band Edge Test Graph(s) (Channel Bandwidth:20 MHz)_HCH_16QAM

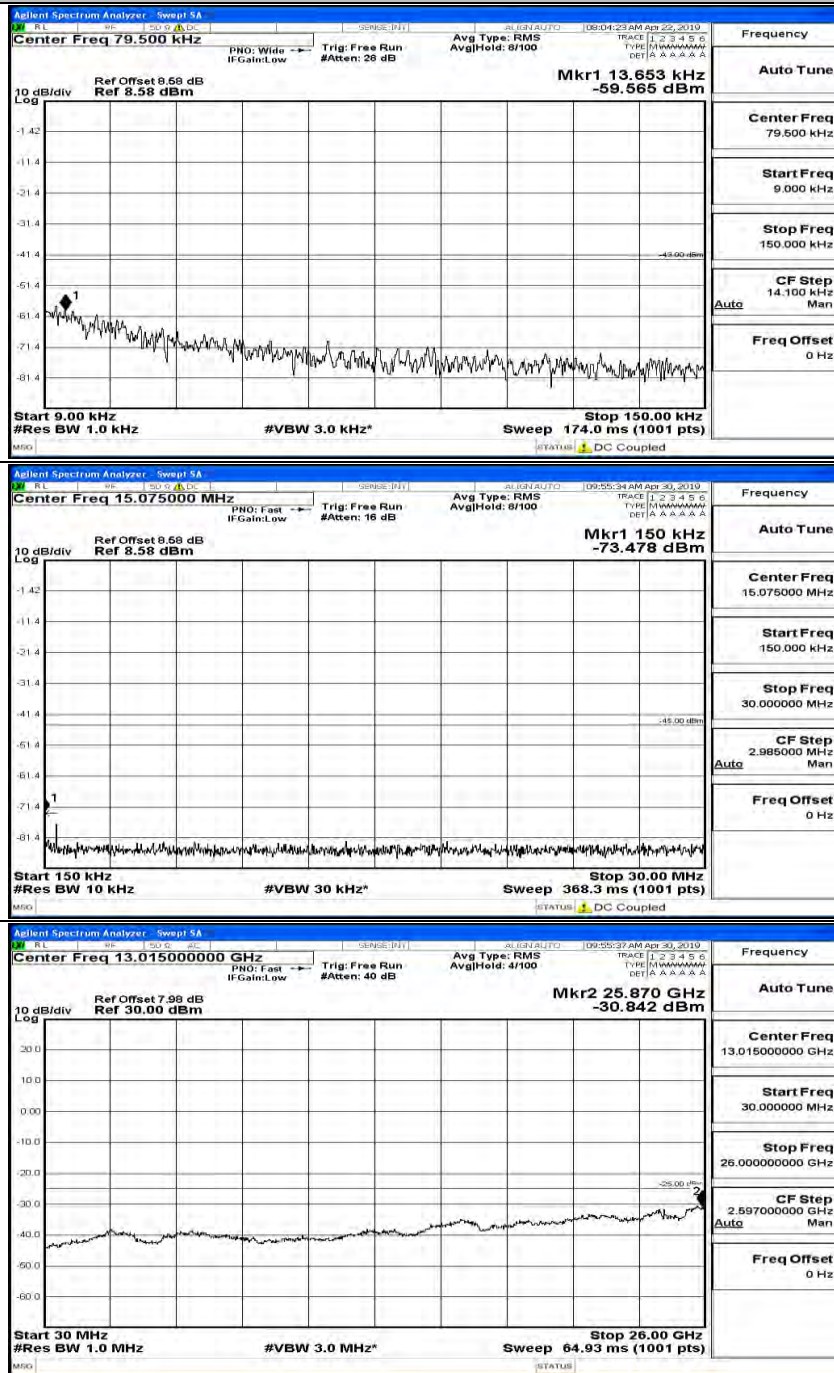


A.5 Conducted Spurious Emission

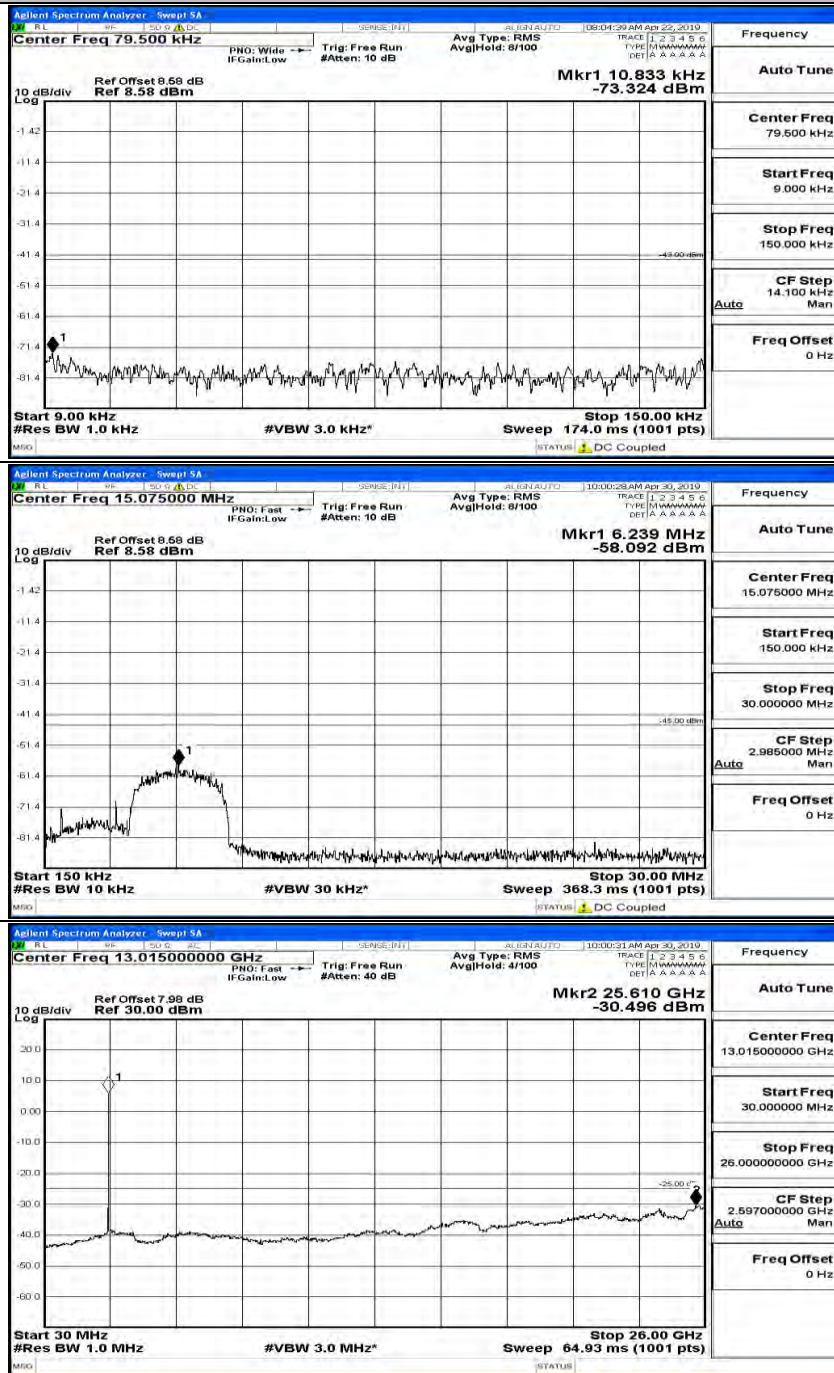
CSE Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_QPSK



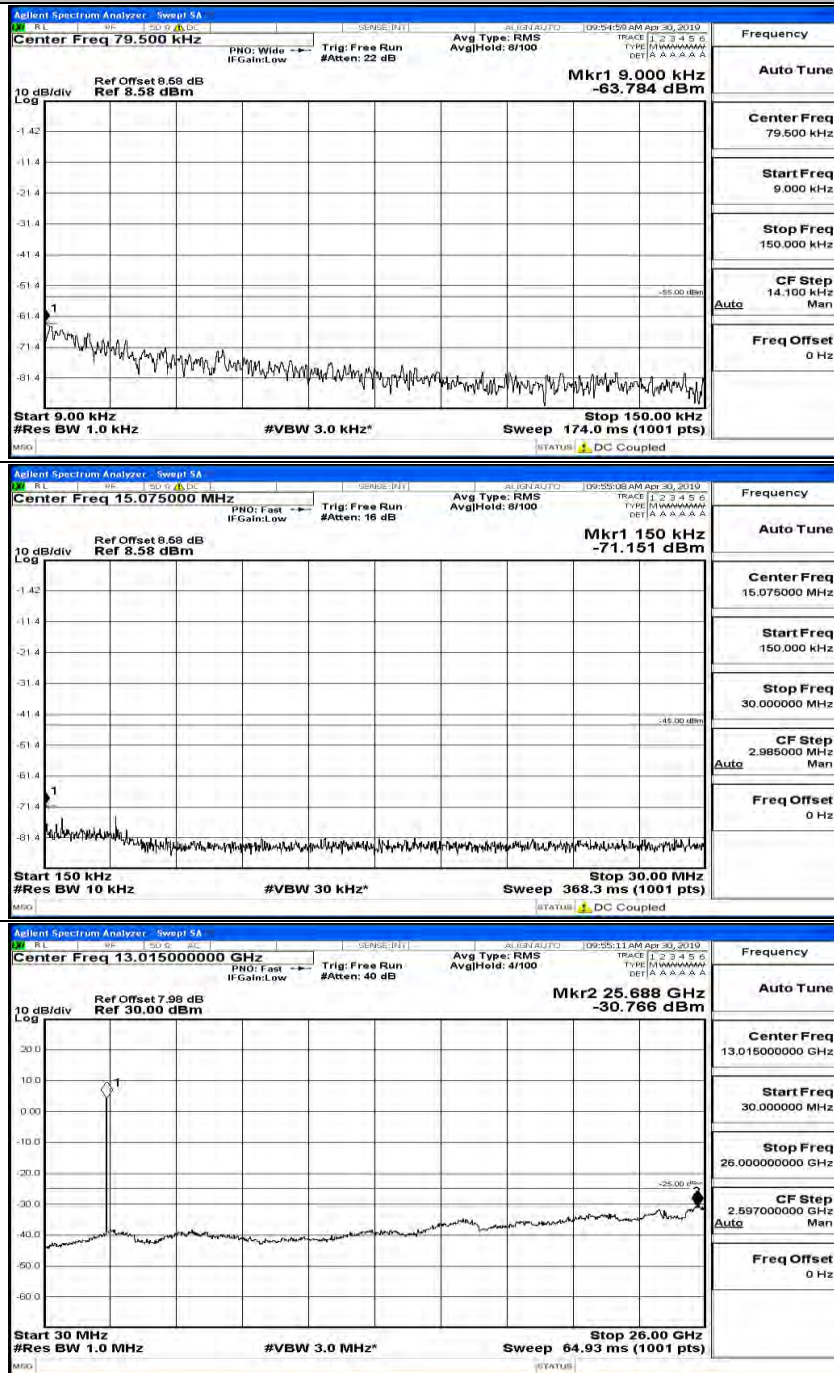
CSE Test Graph(s) (Channel Bandwidth: 5 MHz)_MCH_QPSK



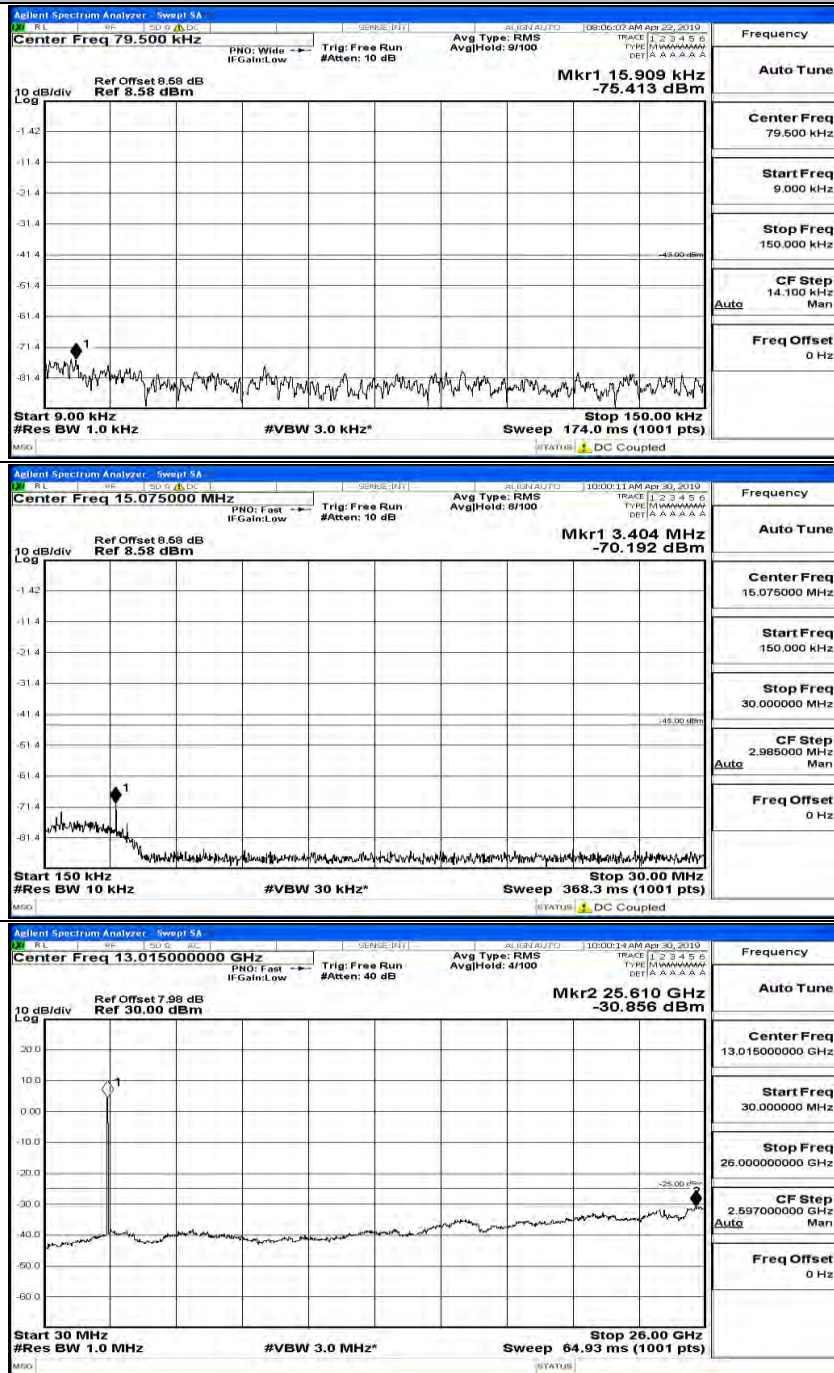
CSE Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_QPSK



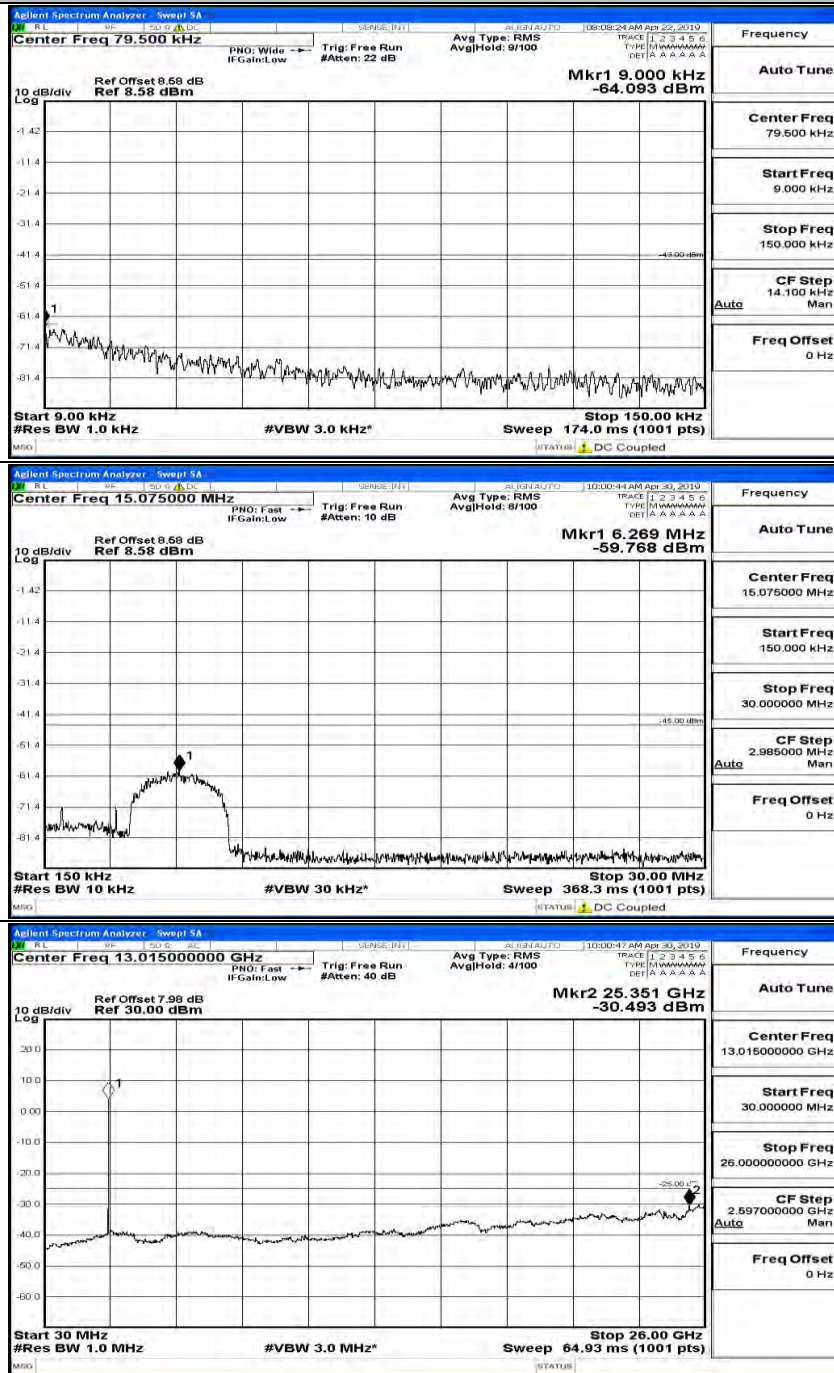
CSE Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_16QAM



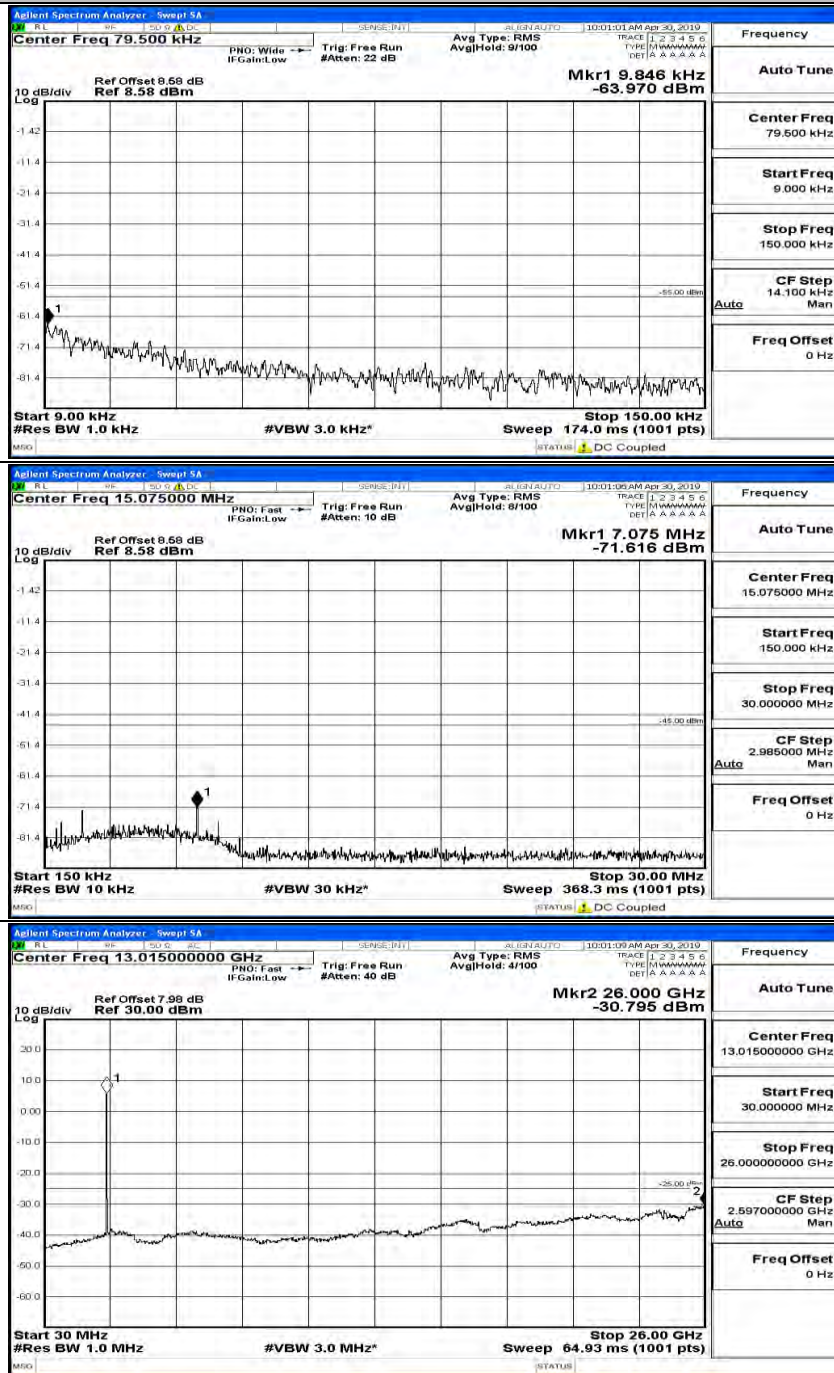
CSE Test Graph(s) (Channel Bandwidth: 5 MHz)_MCH_16QAM



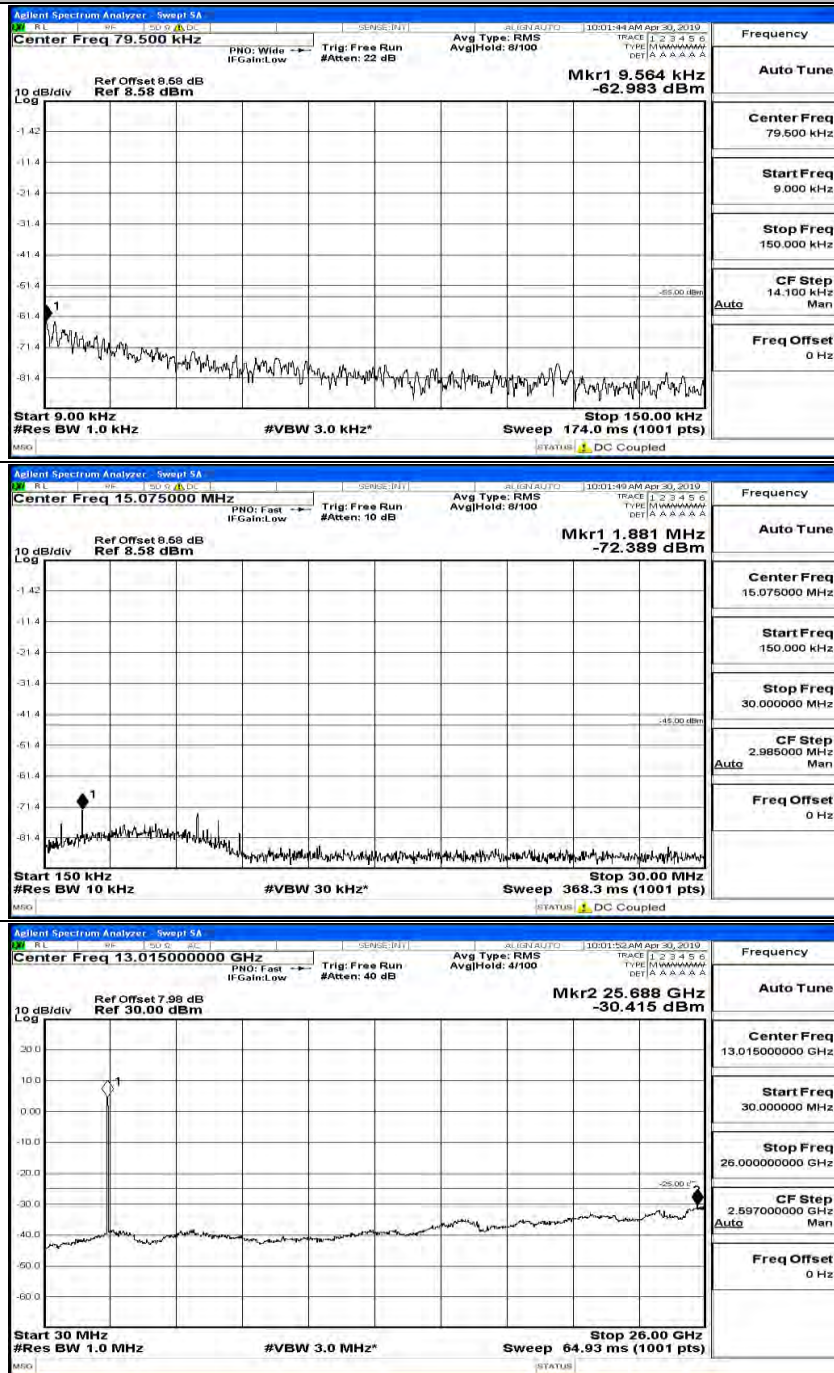
CSE Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_16QAM



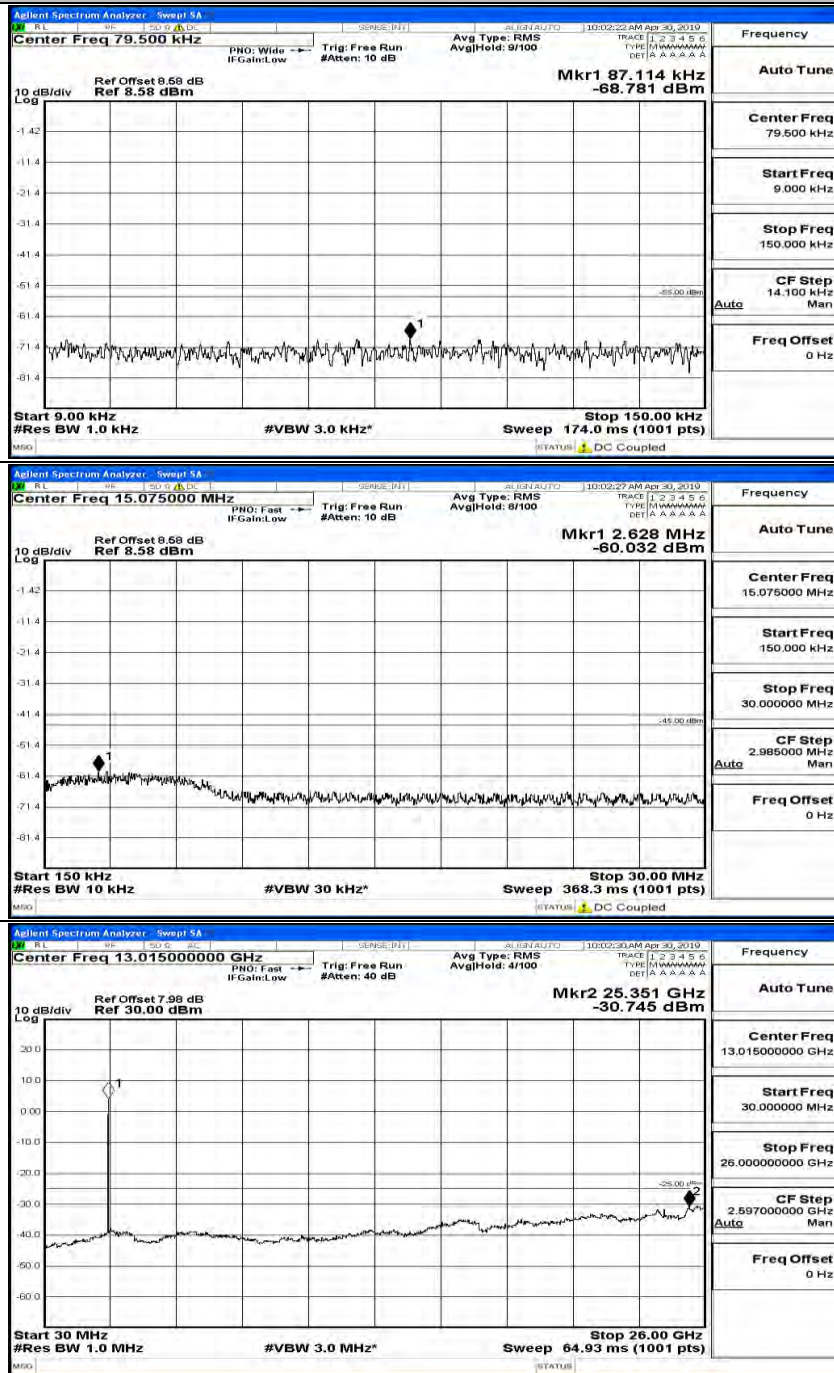
CSE Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_QPSK



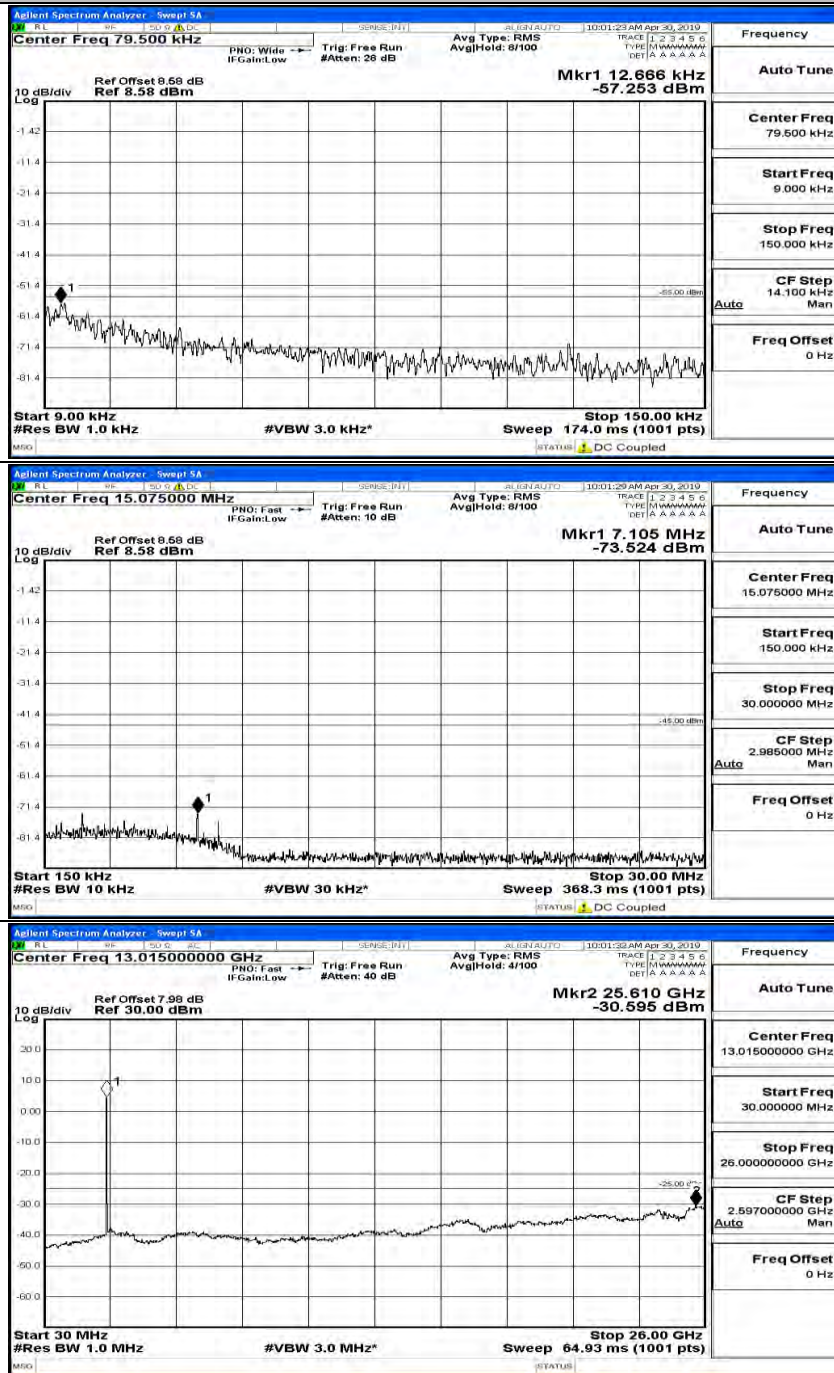
CSE Test Graph(s) (Channel Bandwidth: 10 MHz)_MCH_QPSK



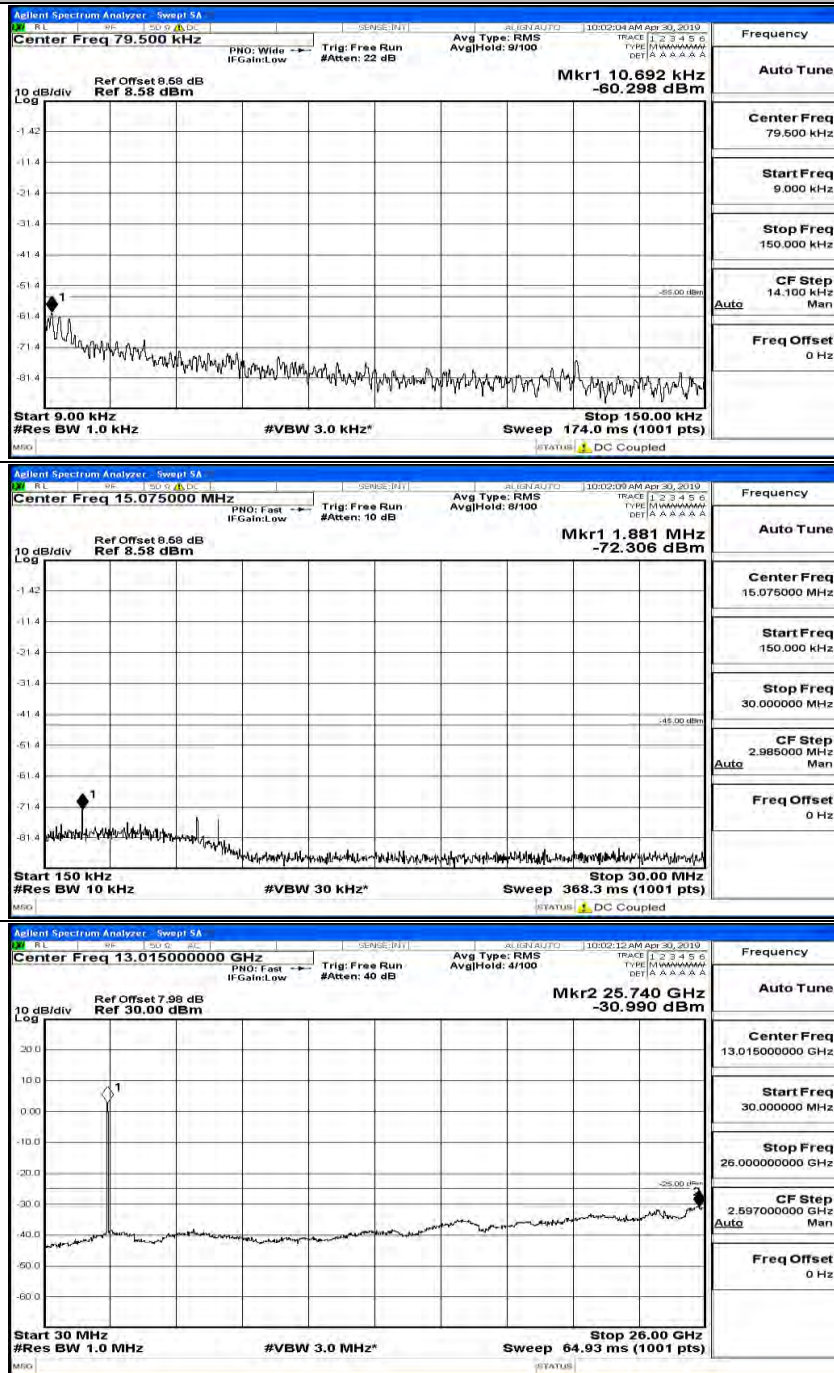
CSE Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_QPSK



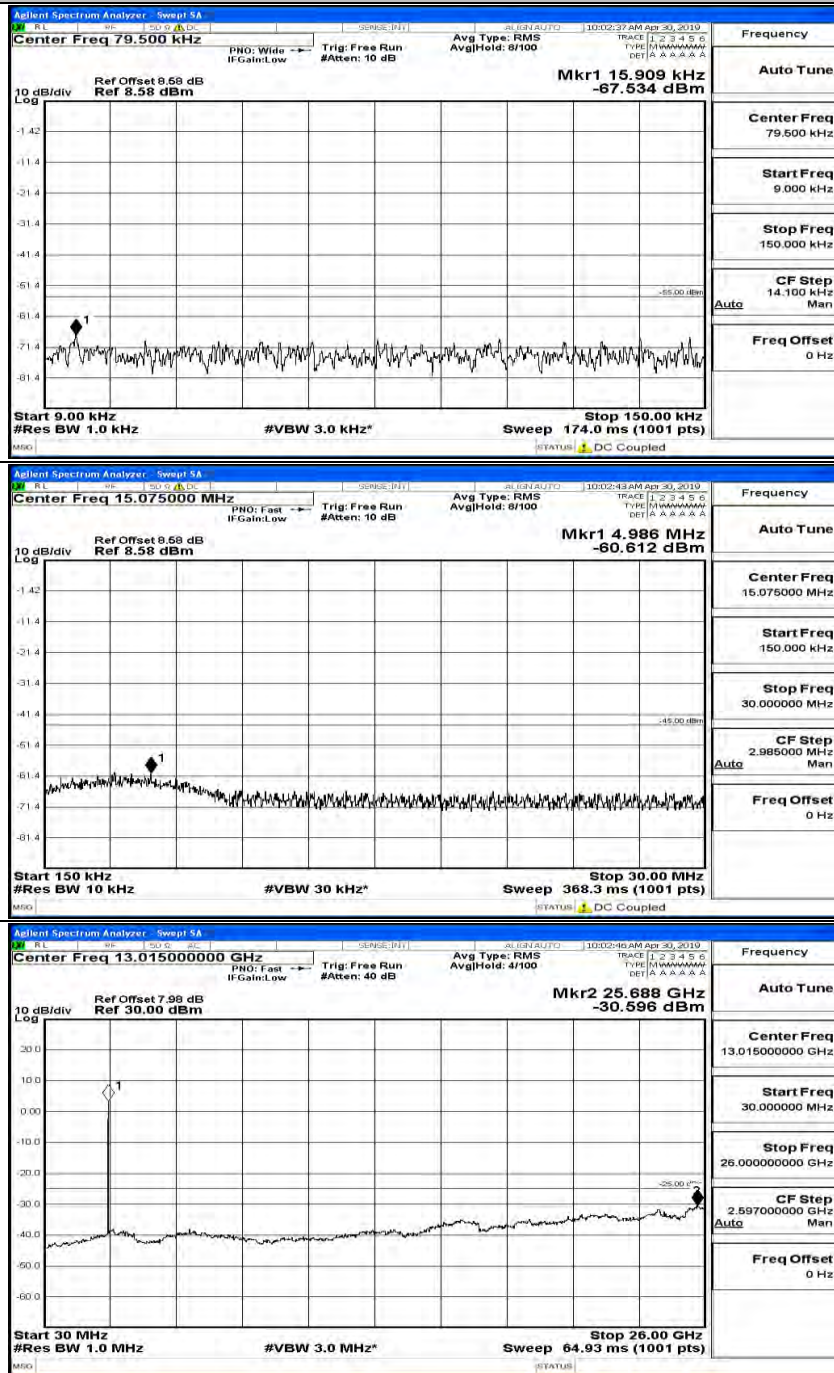
CSE Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_16QAM



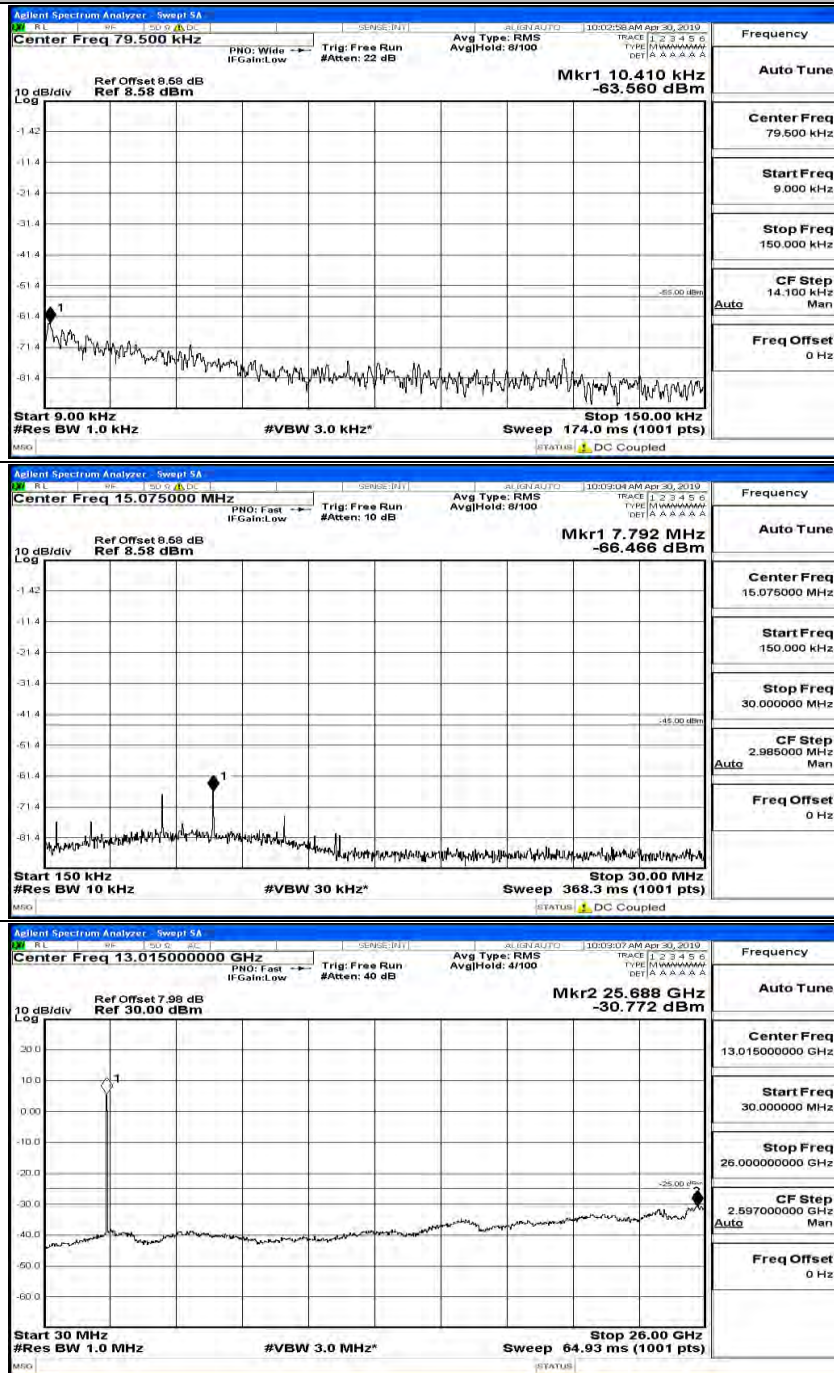
CSE Test Graph(s) (Channel Bandwidth: 10 MHz)_MCH_16QAM



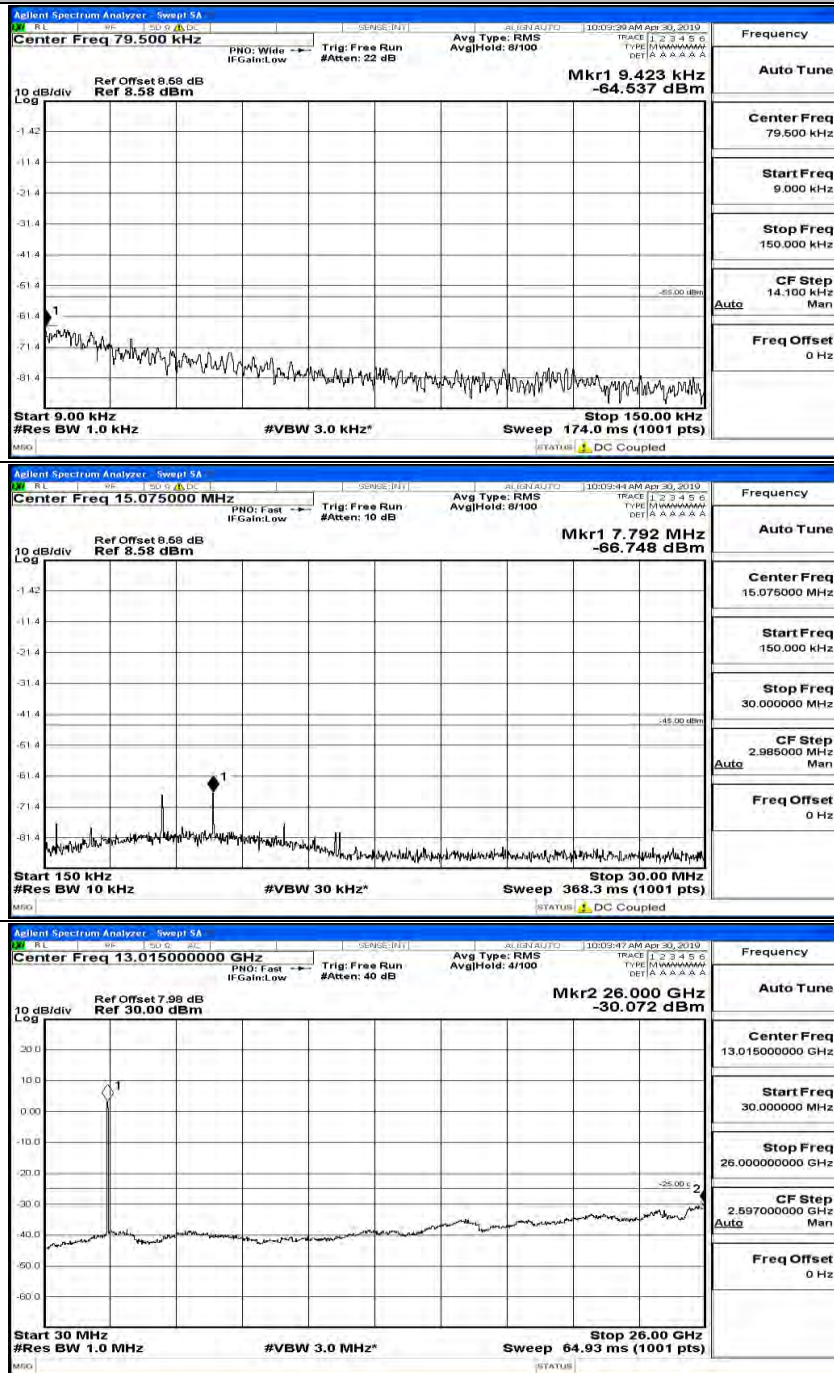
CSE Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_16QAM



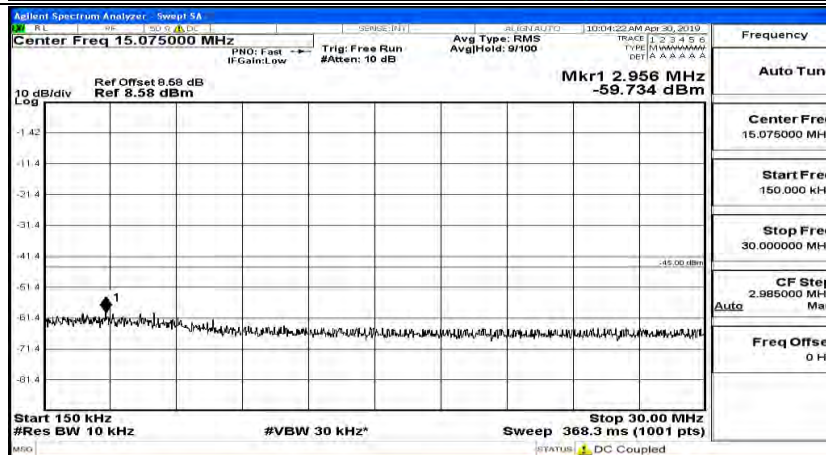
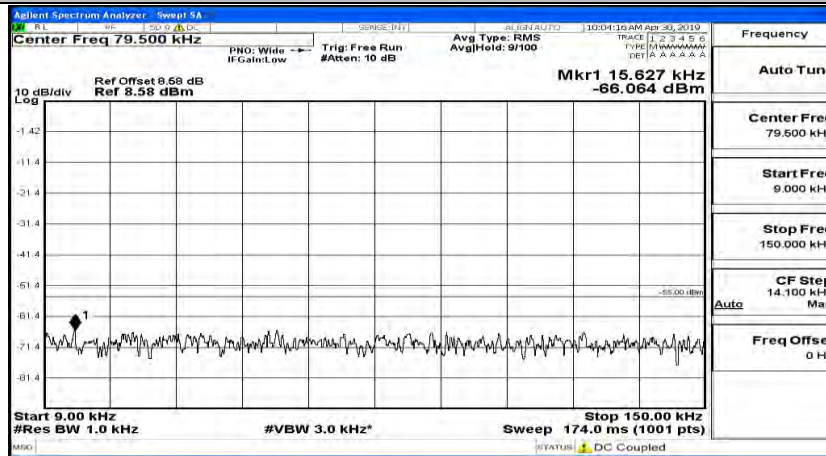
CSE Test Graph(s) (Channel Bandwidth:15 MHz)_LCH_QPSK



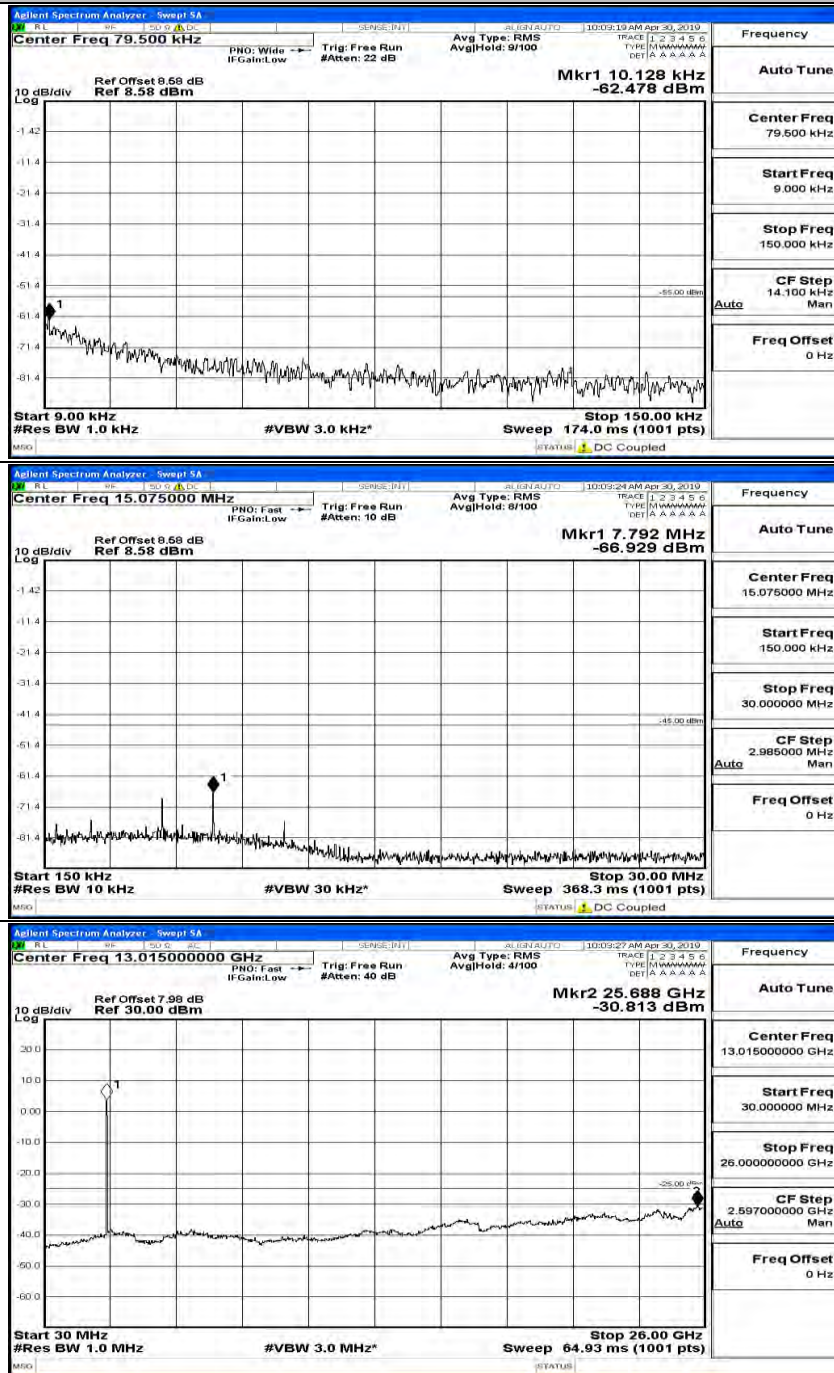
CSE Test Graph(s) (Channel Bandwidth:15 MHz)_MCH_QPSK



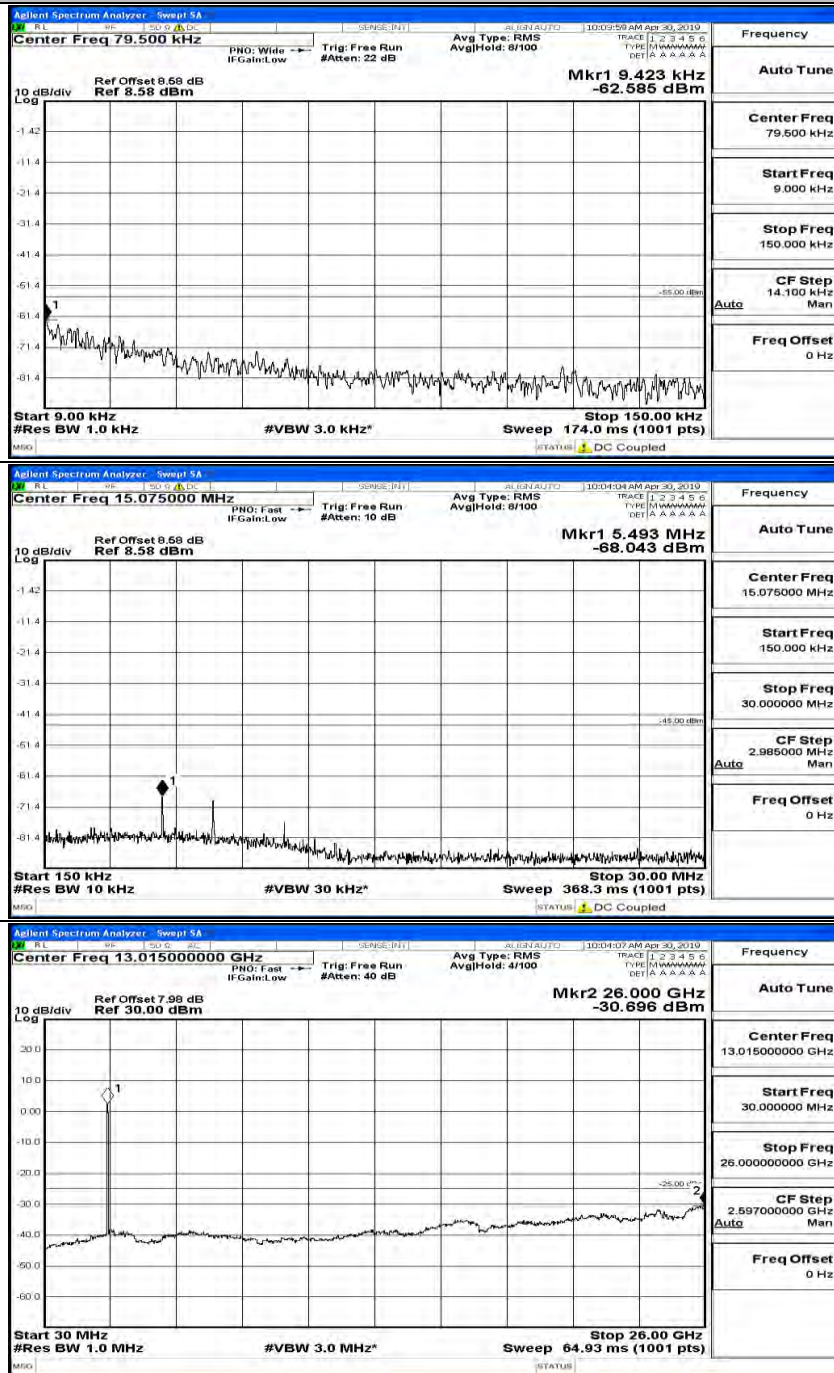
CSE Test Graph(s) (Channel Bandwidth:15 MHz)_HCH_QPSK



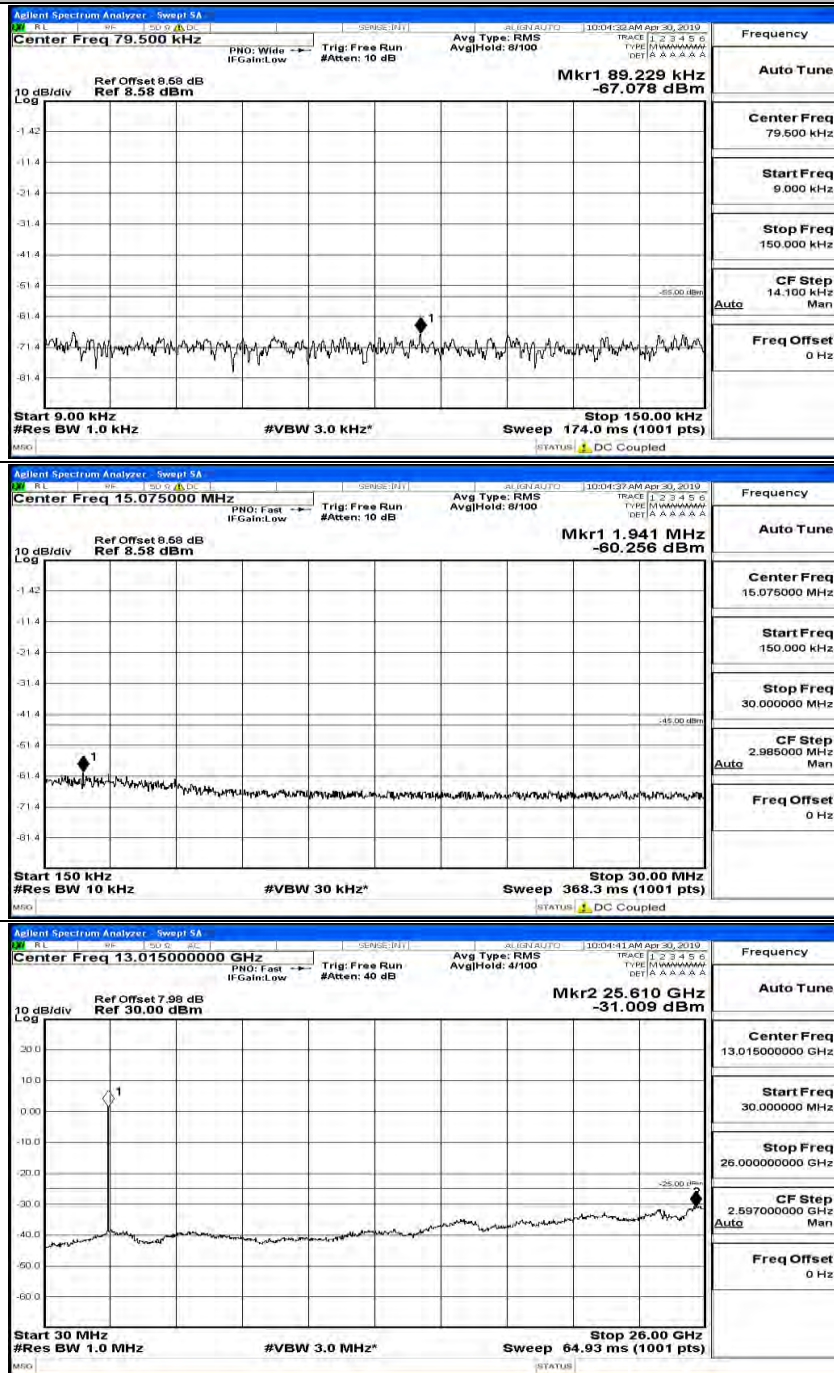
CSE Test Graph(s) (Channel Bandwidth:15 MHz)_LCH_16QAM



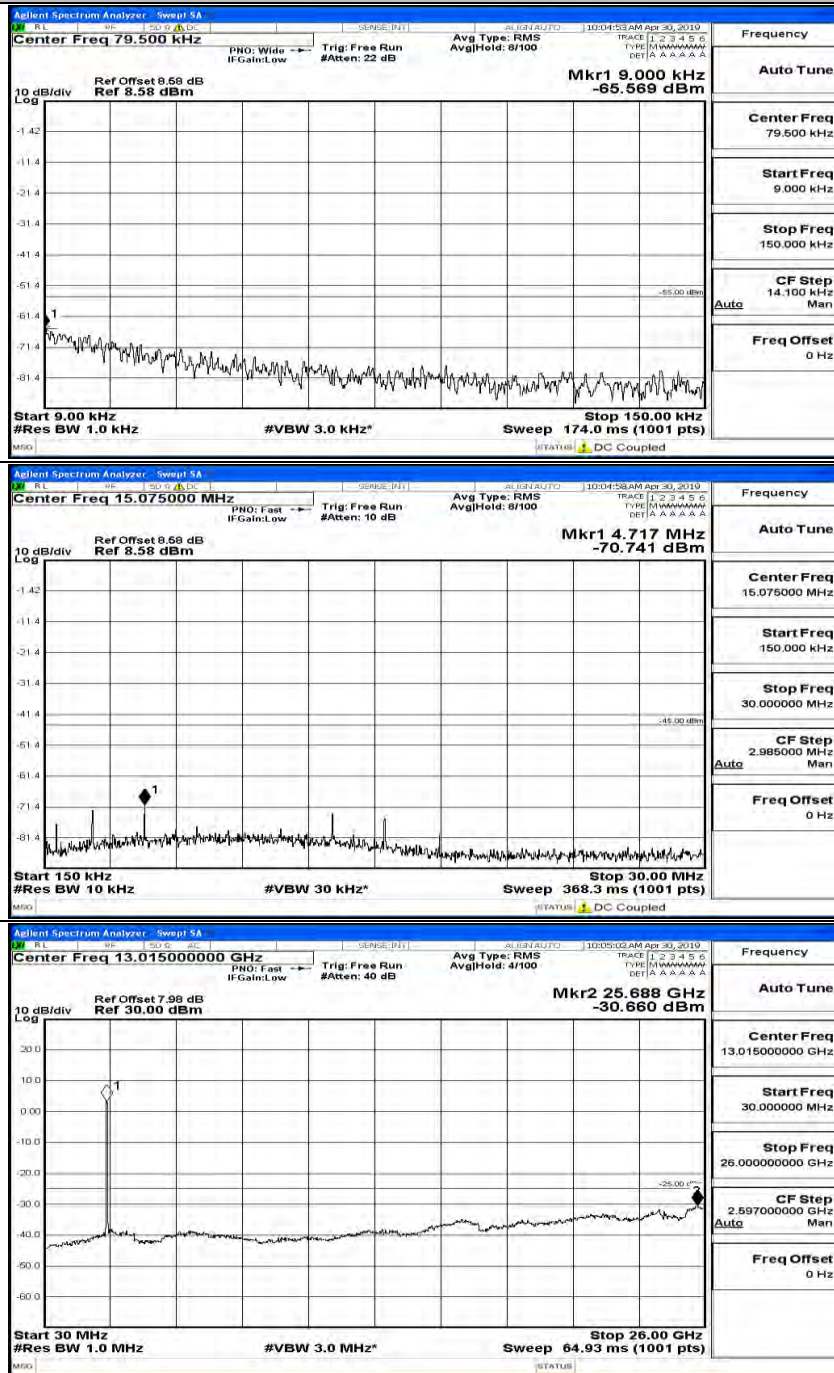
CSE Test Graph(s) (Channel Bandwidth:15 MHz)_MCH_16QAM



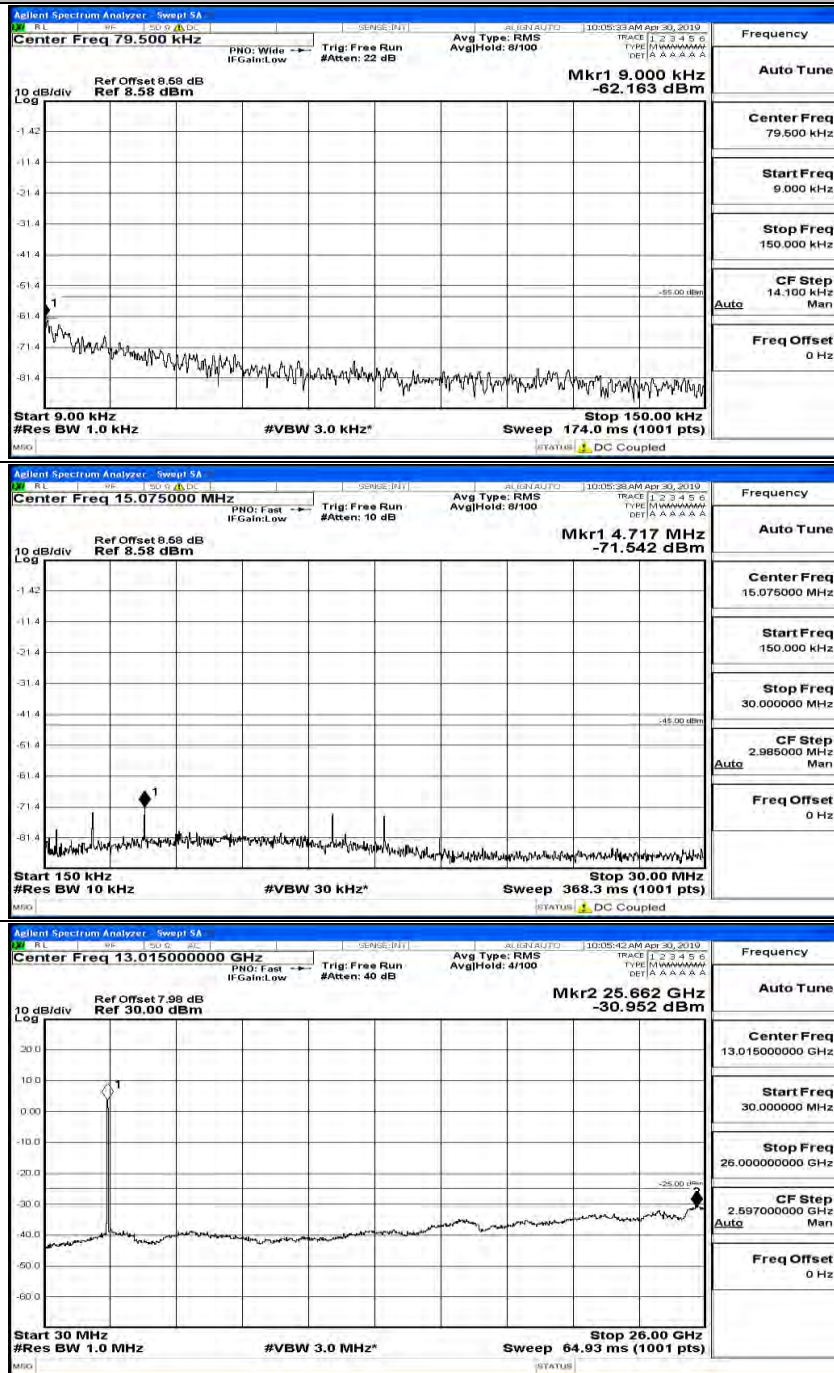
CSE Test Graph(s) (Channel Bandwidth:15 MHz)_HCH_16QAM



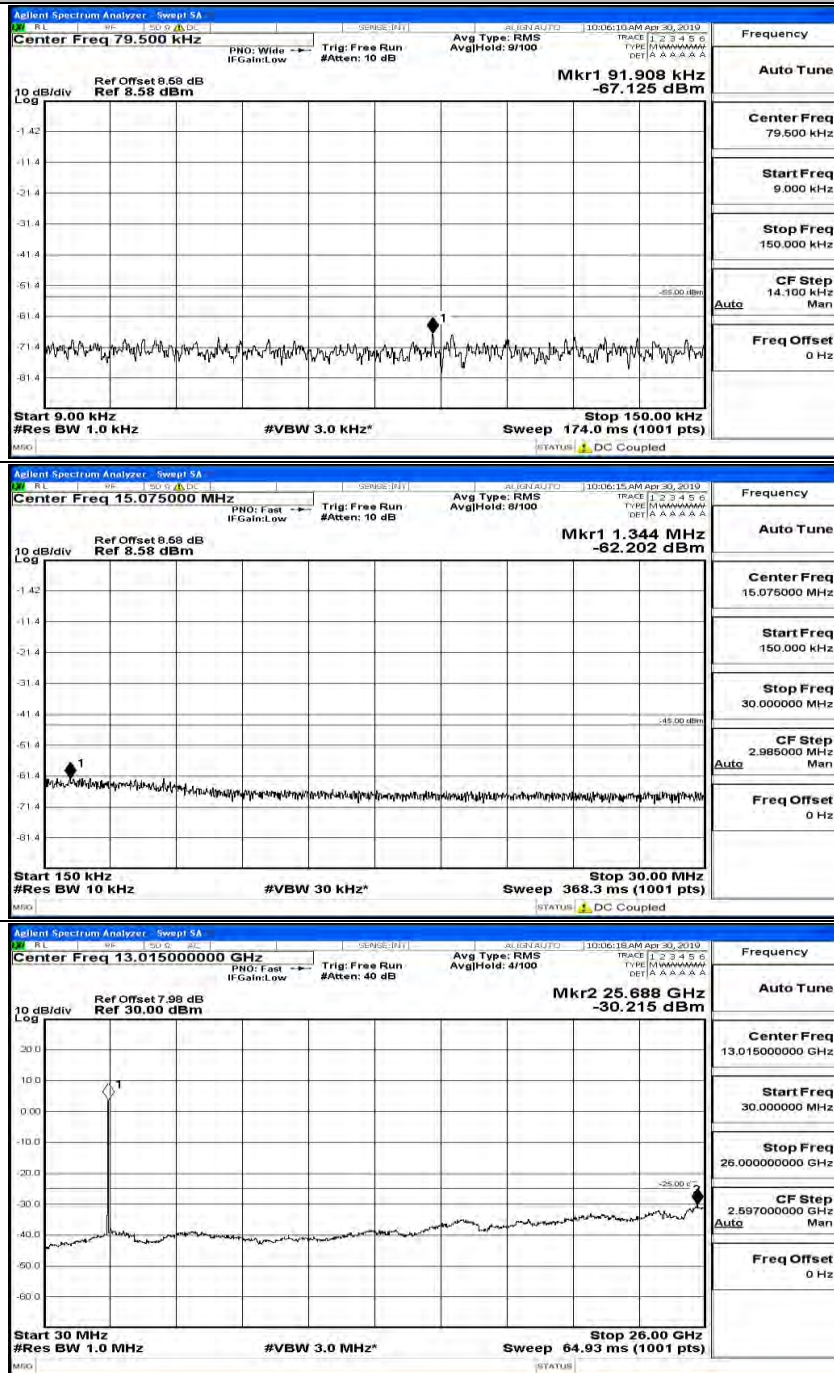
CSE Test Graph(s) (Channel Bandwidth:20 MHz)_LCH_QPSK



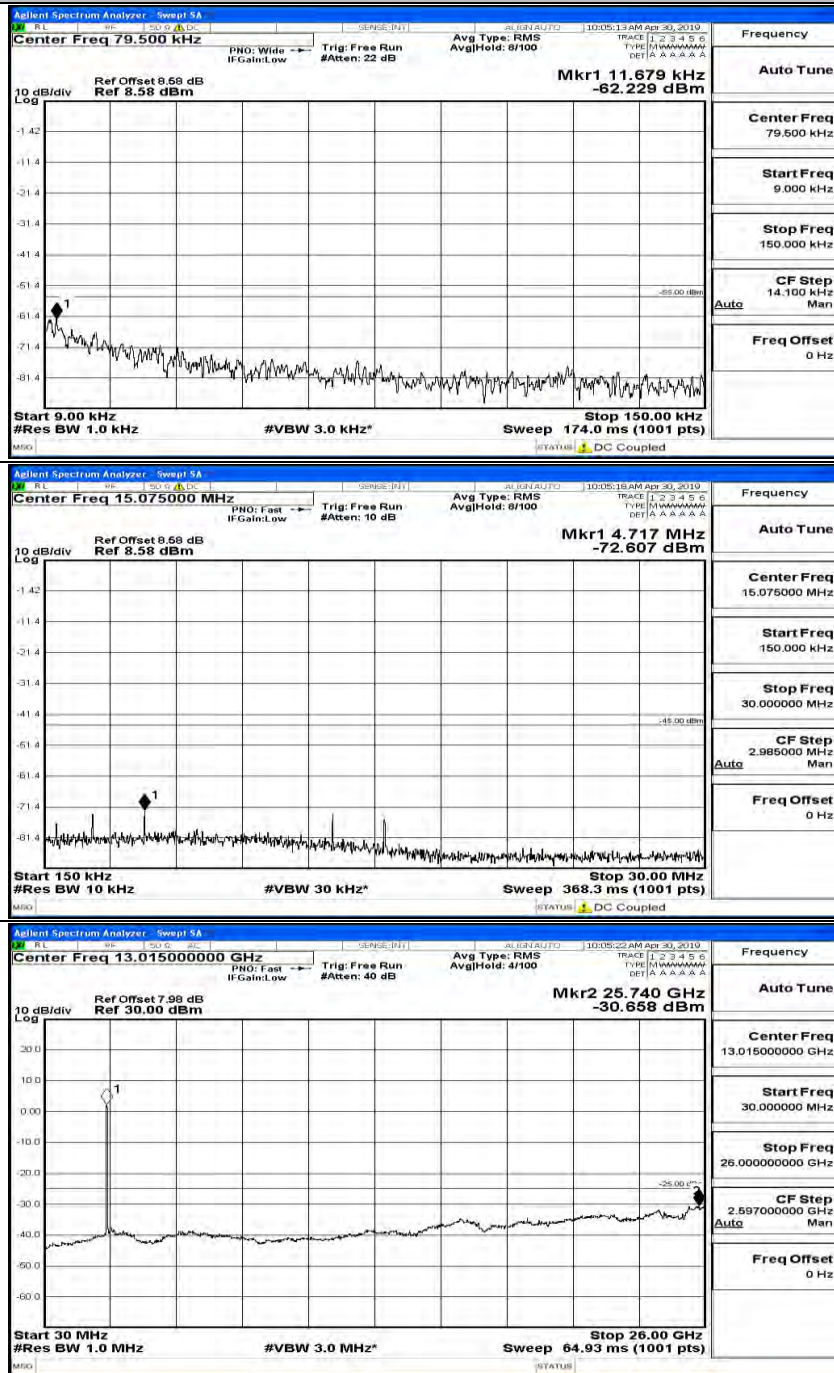
CSE Test Graph(s) (Channel Bandwidth:20 MHz)_MCH_QPSK



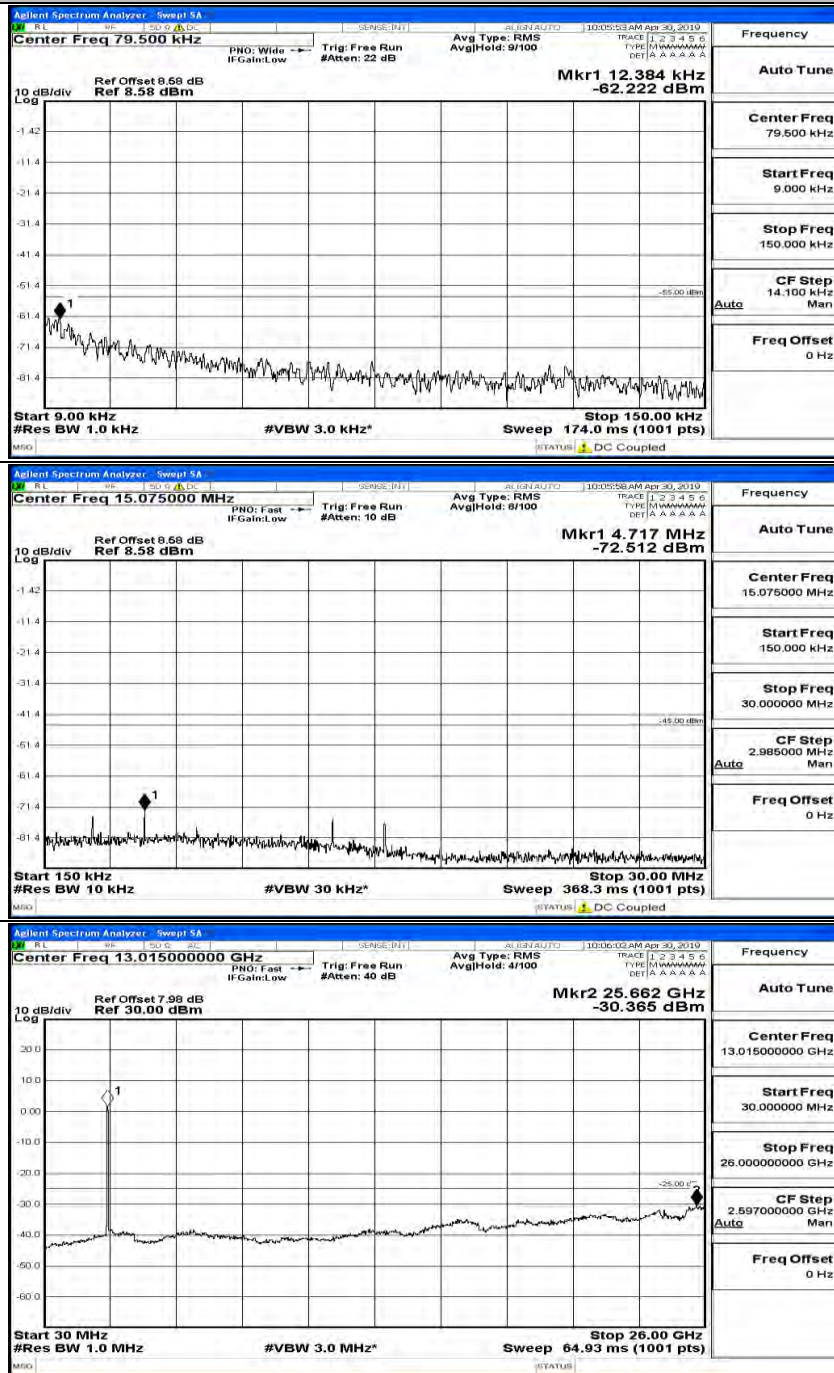
CSE Test Graph(s) (Channel Bandwidth:20 MHz)_HCH_QPSK



CSE Test Graph(s) (Channel Bandwidth:20 MHz)_LCH_16QAM



CSE Test Graph(s) (Channel Bandwidth:20 MHz)_MCH_16QAM



Natent Spectrum Analyzer - Sweet SA

R1 L100.0 dBm SPM9.6 (Hz) A6 8.81 AL(712) 100.00:25 AM Apr '90, 1919

Center Freq 79.500 kHz PNO: Wide --> Trig: Free Run Avg Type: RMS
IF Gain: Low #Atten: 10 dB AvgHold: 8/100 TRACE [1 2 3 4 5 6]
TYPE [A B C D E] DET [A B C D E]

10 dB/Div Ref Offset 8.58 dB Mkr1 11.820 kHz
Log Ref 8.58 dBm -66.772 dBm

-1.42
-11.4
-21.4
-31.4
-41.4
-51.4
-61.4
-71.4
-81.4

Start 9.00 kHz Stop 150.00 kHz
#Res BW 1.0 kHz #VBW 3.0 kHz Sweep 174.0 ms (1001 pts)

M560 STATUS DC Coupled

Auto Tun
Center Freq
79.500 kHz
Start Freq
9.000 kHz
Stop Freq
150.000 kHz
CF Step
14.100 kHz
Auto
Freq Offset
0 Hz

